

**THE ASSOCIATION OF FACULTY'S
TEACHING PHILOSOPHY AND TEACHING BEHAVIOUR,
AND CRITICAL THINKING AND SELF-DIRECTION IN LEARNING**

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ABSTRACT

The intent in this study was to investigate in what ways teachers' beliefs about education and teaching are expressed in the specific teaching behaviours they employ, and whether teaching behaviours, as perceived by their students, are correlated with students' critical thinking and self-directed learning. To this end the relationships studied were: among faculty members' philosophy of teaching, locus of control orientation, psychological type, and observed teaching behaviour; and among students' psychological type, perceptions of teaching behaviour, self-directed learning readiness, and critical thinking. The overall purpose of the study was to investigate whether the implicit goals of higher education, critical thinking and self-direction, were actually accounted for in the university classroom.

The research was set within the context of path-goal theory, adapted from the leadership literature. Within this framework, Mezirow's work on transformative learning, including the influences of Habermas' writings, was integrated to develop a theoretical perspective upon which to base the research methodology.

Both qualitative and quantitative methodologies were incorporated. Four faculty and a total of 142 students participated in the study. Philosophy of teaching was described through faculty interviews and completion of a repertory grid. Faculty completed a descriptive locus of control scale, and a psychological type test. Observations of their teaching behaviour were

conducted. Students completed a Teaching Behaviour Assessment Scale, the Self-Directed Learning Readiness Scale, a psychological type test, and the Watson-Glaser Critical Thinking Appraisal. A small sample of students were interviewed. Follow-up discussions with faculty were used to validate the interview, observation, teaching behaviour, and repertory grid data.

Results indicated that some discrepancies existed between faculty's espoused philosophy of teaching and their observed teaching behaviour. Instructors' teaching behaviour, however, was a function of their personal theory of practice. Relationships were found between perceived teaching behaviour and students' self-directed learning and critical thinking, but these varied across situations, as would be predicted from path-goal theory. Psychological type of students and instructor also accounted for some of the variability in the relationships studied. Student psychological type could be shown as a partial predictor of self-directed learning readiness. The results were discussed in terms of theory development and implications for further research and practice.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

The Problem

While the necessity for fostering critical thinking skills and self-direction in higher education students is generally recognized, very little research has been conducted to investigate whether these goals are accounted for in the university classroom. We also know only little about the actual teacher performances and beliefs that lead to, or are conducive for, the development of these skills in students. The present study focused on the teaching philosophy and behaviour of the teacher in the university classroom. It was investigated in what way teachers' beliefs about education and teaching are expressed in the specific teaching behaviours they employ, and whether students' perceptions of teaching behaviours are correlated with students' critical thinking skills and self-direction. It was acknowledged that not the actual behaviour, but the students' perception or interpretation of this behaviour is the decisive variable for the development of these skills. The main question pursued in the current study was investigated in two parts.

In a first step the relationships among teachers' personal philosophy of teaching, their psychological type, their locus of control orientation, and their teaching behaviour, as perceived by the *individual* students, were investigated. Locus of control and psychological type were assessed through instruments the instructors were asked to fill out. Perceived teaching behaviour was assessed through a questionnaire administered to the students of each faculty member asking for their personal perception of their instructor's performance on six

different scales (encouragement, support, open communication, challenge, participation, and direction). Personal philosophy of teaching was investigated by individual interviews with faculty, the administration of a repertory grid exercise, and also videotapes and field notes from classroom observations taken by the researcher to which input from faculty was invited. Following Argyris and Schön's (1974) notion of a "theory of practice" which can be divided into "theory-in-use" and "espoused theory", it was investigated whether there is a discrepancy between faculty's explicitly stated view of teaching, particularly the view that critical thinking and self-direction are important goals in higher education, and the real values and beliefs which guide them in their actual teaching practice. Data on locus of control and psychological type of each faculty member were considered to have a potential to enhance a better understanding of faculty members' theory of practice and actual performance in the classroom.

In a second step it was investigated whether there is a relationship between the teaching behaviour as perceived by the students and their critical thinking skills, self-direction in learning, and psychological type. This was done in three stages. First, perceived teaching behaviour was considered the independent or predictor variable in order to investigate its relationship with critical thinking and self-direction in students, which were the dependent or criterion variables. Second, the relationship between student psychological type, their self-direction in learning and their critical thinking was addressed.

Third, the relationship between student psychological type and their group (average) perceptions of the instructor's teaching behaviour was investigated. Although the two variables, psychological type and group perception of teaching behaviour were measured quantitatively, the relationship between these variables was discussed in the section on qualitative data analysis. Interviews with individual students from each class provided further information on critical thinking and self-direction in learning and were used to triangulate the results obtained through the quantitative analysis.

The primary research question was a composite of these two major parts. In an attempt to investigate whether the implicit goals of higher education, student self-direction and critical thinking, are actually accounted for in the university classroom, it was researched whether there is a relationship between teachers' philosophy of practice, their applied leader behaviour as perceived by their students, and students' critical thinking and self-direction.

Rationale

Gage (1963) pointed out that research on teaching had focused on three major questions. These are: "How do teachers behave? Why do they behave as they do? What are the effects of their behaviour?" (cited in Dunkin, 1986). As it was described above, the present study addressed each of these questions. The results relating to the latter, however, need to be treated with caution due to a variety of limitations which will be stressed again at the end of this chapter. Whereas the first question is primarily concerned with processes,

the second question can also address the relationship between processes and presage variables (characteristics of students and teachers) and context variables (environment), and the third one is essentially addressing the relationship between processes and products (e.g., academic achievements and attitudes). Dunkin (1986) could show that the dominant paradigm most research on teaching in higher education has proceeded from has been the process-product one. However, in his concluding comments he made the following suggestions:

The process-product paradigm is limiting in the types of knowledge about teaching and learning that can be generated within it. Research on teaching in higher education might do well to explore alternative paradigms ... In particular, there would seem to be value in a paradigm of presage, context, process, and product variables elaborated so as to accommodate teacher thinking and valuing as well as student academic learning processes (Dunkin, 1986, p. 774).

The notion implied in this quote is that teaching needs to be studied situation-specifically. The present study was conducted with the intent to broaden the knowledge base on teaching in higher education by taking into account presage, context, process and product variables and their relationships.

Many authors emphasize the importance of an interactive, supportive and challenging climate as the prerequisites for the development of critical thinking and self-directed learning (cf. Brockett, 1985; Brookfield, 1986, 1987a,

1990; Dewey, 1938; Lindeman, 1926; Meyers, 1986; Mezirow, 1985a, 1991a, 1991b; Robertson, 1987). In this study it was proposed that, in order for a learning climate to be most conducive for adult learning, the teachers and students need to be compatible in terms of their basic personality characteristics. Compatibility was assessed in terms of Jung's (1971) concept of psychological type. Jung (1971), basing his views also partially on historical systems of typology, believed that people function differently, and that the way people function or make sense of the world, is expressed by certain distinct behavioural characteristics which are seen as "typical" for them. These characteristics are preferences and dislikes which certain "types" share. This is one reason why psychological type was selected as a variable to be assessed for both teachers and students. Students' perception of their instructor's teaching behaviour was related to compatibility or discord of psychological type between students and their instructor. The second reason why type was included into the investigation is that Herbeson (1990) could show that psychological type is a strong predictor of students' ability to engage in self-directed learning activities. To further elaborate on these research findings, the relationship between psychological type of students and their critical thinking and self-direction was investigated.

On the part of the teacher two further variables were considered, "locus of control" and a "personal theory of practice". Several studies indicated that the locus of control orientation of a teacher has a significant influence on the

person's teaching behaviour (cf. Feldman, 1983; Pigge & Marso, 1990a, 1990b; Richards, Gipe, Levitov & Speaker, 1989; Rose & Medway, 1981; Soh, 1986). Writers such as Brookfield (1986, 1987a, 1990), Argyris and Schön (1974), Schön (1983, 1987), Novak (1992) and Cranton (1992) emphasize the importance of personal theory building about one's teaching. Having a clear rationale underlying one's practice, so goes the argument, will lead to better quality teaching. However, building a theory of practice requires reflection on the part of the leader. Studies on locus of control as well as on Jung's (1971) theory suggest that personality characteristics will make a difference in people's preference and/or ability to engage in these mental processes.

In order to stress the contingency aspect of teaching, the study was located in a conceptual framework borrowed from leadership theory which strongly emphasizes the point that there are no universal behaviours that will be effective in all situations. Path-goal theory (House, 1971) assumes that leaders, in order to be most effective, will adjust their behaviour to the situation, and do so with the goal of keeping the motivation of their subordinates high. Motivation is considered the intervening variable and is divided into two parts called "expectancy" and "valence" (Vroom, 1964), where expectancy is the perceived probability of an outcome and valence is the desirability of the outcome experienced by the individual. Only if motivation is high, will followers exert high levels of effort to reach high degrees of performance. According to path-goal theory, the most effective leader behaviour can fall into one or more

of four categories: supportive, directive, participatory and achievement-oriented behaviour. If faculty truly believed in the importance of teaching critical thinking and self-direction as they state on an espoused level, they would try to encourage self-direction and critical thinking in their students. One can argue that they would try to do that by exerting positive influence on the motivation in their students by choosing those teaching behaviours that are most promising at the given situation.

It seems of paramount importance to highlight in this context that the view that "students do have brains that function" (Connolly, 1993) is not ignored in this study. Path-goal theory integrates two streams in psychology, the stimulus response (Pavlov, 1926), or reinforcement (Skinner, 1953), theory and the field theory (Lewin, 1951). The danger implied in interpreting path-goal theory in a merely behavioural way, is to stigmatize the human being as a basically passive neutrum. People's behaviour then is either interpreted as a response to a specific stimulus, an involuntary reflex (Pavlov, 1902), or the behaviour is considered to be determined from the outside by particular reinforcements (Skinner, 1971). In the latter, it is argued that behaviour is a function of its consequences. Field theory assumes that behaviour is the result of the way the individual perceives the environment, identifies goals and intentions, and construes the prospects for success. Motivation, which is constituted by the relative attractiveness of the goal (valence) and the prospects for success in achieving the goal (expectancy), is seen to rest within the

individual. According to these two notions in psychology, behaviour is considered a function of the expectancy that a particular reinforcement will follow a certain behaviour (response) and the value that is assigned to this reinforcement. In the present study, however, it is not argued that students are "passive" or "empty containers" completely unmotivated before or without teacher intervention (Pavlov, 1902; Skinner, 1971), nor is it the understanding that students' motivation will lead them to demonstrate certain *behaviours*. Contrarily, the argument forwarded here is first, that teachers can give direction to students' inherent motivation or can sustain students' inner motivation and second, that the "outcome" in this study is not merely a *behaviour* students demonstrate as a result of their motivation, but that critical thinking and self-directed learning imply a composite of skills and attitudes, which necessitate inner motivation as a prerequisite. George Kelly's (1955) Personal Construct Theory represents a third stream in psychology. He assumes two things: first, human beings understand or perceive the world in terms of hierarchically structured interrelated constructs which are challenged when a cognitive dilemma is encountered and the old constructs no longer seem to make sense in understanding and explaining the world. In this case, the old constructs may become revised. The second assumption is that human beings inherently strive to protect or sustain their self-concept. This means that views or assumptions about the world that have been found wanting through experience are not easily changed. However, in Kelly's terms people develop as a consequence of

altering their personal constructs. Invitational education (Purkey & Novak, 1984), is based on these two interrelated foundations; the perceptual tradition and self-concept theory.

Invitational theory assumes that through the genuine demonstration of trust, intentionality, respect, and optimism, teachers take an inviting stance and facilitate the academic, personal, and social learning processes of students by helping them to sustain a healthy self-concept and to progress in their development through reflection on the constructs they use to understand the world. Although emphasizing Kelly's notion that motivation rests within the student, Novak and Stanley (1992) forward the argument:

Although this fundamental internal motivation cannot be reduced to outside forces, *it can be invited forth* [emphasis added]. Thus, people are always participants in their own growth and sources of messages for others' development. To ignore perceiving invitations from the perspective of the participant is to miss the point of inviting (p.5).

The view expressed in the quotation is that invitations sent to students will facilitate their personal and academic development and aligns well with the conceptual framework chosen for this study; that is, that teachers, through their behaviour, can exert influence on the motivation of their students. Motivation, so it is argued in this study, is important for critical thinking and self-direction to occur. This motivation might be "invited forth" (Novak & Stanley, 1992, p.5) by certain teaching behaviours. Relating invitational theory to the education of

adults, Russell (1992) points out the benefits of connecting invitational theory with cognitive developmental theory. "Constructive mismatch" (p.165) is considered essential for adult development, which is argued to occur in stages. The idea of "constructive mismatch" or "cognitive dissonance" (p.165), resolved through a process of thorough reflection on the experience and subsequent revision of the invalid construct, emphasizes the challenge component in teaching behaviour which needs to be embedded in a supportive environment. Although the actual development certainly lies in the student and can only occur as a result of students' inner motivation, it becomes also evident that teachers, through their *intentional* behaviours, can make a difference in the direction this motivation takes. It is in this sense that in the present study, faculty are seen to motivate their students through the demonstration of certain behaviours.

Studies by Sadowski and Woodward (1981) and by Deci, Nezlek and Sheinman (1981) indicated that an internal locus of control orientation in teachers is positively related to students' internal motivation. Meyers (1986) pointed out that critical thinking will develop only if teachers recognize the importance of stimulating interest for the discipline they teach. He wrote:

Learning to think critically in any discipline begins with an appreciation of the value of a disciplinary perspective. Teachers must not *assume* appreciation but *create* [emphasis in original text] it. ... Set students' minds to pondering, for in such a context they will experience both curiosity to know more and disequilibrium that will challenge their old

ways of thinking and prepare them for new modes of critical thinking (Meyers, 1986, p.44).

The problem that suggested itself for investigation was what teachers do in order to exert influence on the motivation of their students to engage in critical thinking and self-directed learning activities. At the same time it was acknowledged that teachers' behaviours might differ according to the discipline and the individual students they teach. Student characteristics, level of instruction, time of instruction, etc., also were recognized to make a difference. Arguing from the perspective of path-goal theory it follows that different strategies or behaviours might be at stake to sustain positive student expectations regarding their achievement, and the worth or value they assign to the material. Arguing from a Kellian or invitational perspective, it follows that teachers intentionally send messages to students that will help to sustain a positive self-concept but also foster academic, personal, and social development. As Russell (1992) could show this message can be merely supportive but also challenging, which is the intentional manipulation of the environment in order to provoke "constructive mismatch" (p.165). In this study it is argued that the behaviours teachers engage in may be supportive or challenging, but they also may be directive or participatory. Hence, motivation was not measured in this study as it was presumed that self-direction and critical thinking can only occur as a result of inner motivation.

Purpose

The purpose of the study was to investigate whether the implicit goals of higher education, critical thinking and self-direction in learning, are actually accounted for in the university classroom. Secondly, it pursued the question whether there is something in the teachers' personalities and the values and beliefs they hold that determines their leader behaviour. Thirdly, it attempted to provide some further insight into the perceived teaching behaviours which are related to critical thinking skills and self-direction in students. Finally, it addressed the problem as to whether the development of critical thinking and self-direction in students varies with their psychological type.

Assumptions

The study was conducted under the following assumptions:

1. Critical thinking and self-direction are implicit goals in higher education.
2. Teachers are leaders in that they intend to effect change in students, "whether that change be an increase in knowledge, the acquisition or improvement of a skill, or a change in attitude and behaviour" (Zinn, 1990, p.41) and hence seek to exert influence.
3. Individuals vary in their personality characteristics.
4. Students' motivation is a prerequisite for critical thinking and self-direction in learning.

Limitations

The study was conducted under a variety of limitations. First, critical thinking and self-direction in students may be the result of confounding variables such as former exposure to a different teacher, friends, or family background. Since the study did not follow a pre- and posttest approach it is not possible to assess the degree to which critical thinking and self-direction in students are influenced by the perceived teaching behaviour of their instructor. The identified relationship is one only of current skills and attitudes of students and the perceived teaching behaviour of their instructor. Second, a small sample size of only four instructors does not allow for any generalizations to be drawn from the obtained results. It needs to be emphasized also that the study was basically exploratory in nature. Third, as the perceived leadership behaviour of the teacher was assessed by the students responding to a questionnaire, objectivity in the description of teacher behaviour was jeopardized. Sympathy or antipathy regarding the teacher may have distorted the students' perception of the actual behaviour. Also variables such as class size, level of instruction, and required versus elective courses have been shown to influence students' perceptions of instructors. Fourth, since locus of control as well as psychological type were assessed by self-scoring questionnaires, deliberate and nondeliberate manipulation of the test results are possible. Faculty and students may have conceived of "being critical" and "self-directed" as the desired variables and may have tried to assign high scores to those

items which appeared to be related to these variables. This is a particular concern when one considers that critical thinking and self-direction are highly valued characteristics in Western societies (Brookfield, 1987a; Candy, 1991), and that research on Rotter's Locus of Control Scale, the most widely used instrument to assess people's control orientation, indicated that it is affected by a social desirability response bias (MacDonald, 1973). In addition, there are general limitations in measuring psychological type as identified by Jung. Fifth, the choice of instruments in order to measure critical thinking was critical, as construct validity for this test is questionable in the present study. The remaining question is whether the selected instrument really measured critical thinking as understood by the instructor and/or defined for the current study. Sixth, since students' self-direction was assessed by their own responses to a questionnaire, the results may be manipulated. Seventh, since a correlational design was used, causal relationships could not be established. Eighth, only psychological type was considered as a characteristic in students and compatibility between teacher and student personality was investigated only in terms of this one variable. However, other characteristics such as age, gender, locus of control, academic experience, or professional experience might have a direct impact on the development of critical thinking and self-directed learning. Variables such as life-philosophy, political beliefs, socioeconomic factors have also a role to play in the question of compatibility of student and teacher personality.

Definition of terms

1. Achievement-oriented behaviour: This term pertains to a leader's behaviour that is characterized by "setting challenging goals, seeking performance improvements, emphasizing excellence in performance, and showing confidence that subordinates will attain high standards" (Yukl, 1989, p. 100).
2. Critical thinking: The term pertains to a composite of "skills, attitudes and passions" (Nosich, 1992, p.vi). Following the definition underlying the Watson and Glaser Critical Thinking Appraisal (Dressel & Mayhew [1954]), it implies the ability to define a problem, the ability to select pertinent information, the ability to identify and challenge assumptions, the ability to make inferences, and the ability to draw valid conclusions by judging the validity of inferences. According to Dewey (1933), it is characterized by a willingness to suspend judgement. Since suspending immediate judgement and identifying invalid assumptions can be a very uncomfortable experience, critical thinking also has an affective dimension (Paul, 1992; Brookfield, 1987a). Last but not least, it encompasses a desire to question deeply-held beliefs and to envision and to explore alternatives (Paul, 1992).
3. Directive leader behaviour: This term refers to a leader's behaviour that is characterized by letting students know what they are expected to do, giving specific guidance and directions, asking students to follow certain rules and procedures.
4. Implicit goals of higher education: Educational goals faculty readily accept

on an espoused level. In this study it is assumed that these goals are the development of critical thinking skills and self-direction in learning, since these are global and generally recognized aims of education in a democratic society.

5. Locus of control: In this study the term is used to describe teachers' beliefs about the degree to which their own behaviour influences student performance and classroom events.

6. Participatory leader behaviour: This term is used to describe a leader's behaviour that is characterized by "levelling" with students, consulting with them, involving them in decision-making and taking their opinions and suggestions into account.

7. Philosophy of teaching: This term is used synonymously with philosophy of practice. It pertains to teachers' own assumptions, beliefs, values, explanations and justifications that guide them in their practice.

8. Psychological type: This term describes people's personal psychological preference as to how they relate to the world. A type is characterized by either introversion or extraversion and one out of four cognitive functions; these are thinking, feeling, sensing, and intuition.

9. Self-directed learning: The present study conceives of self-directed learning as a process in which learners perceive themselves as being in control of the learning project, and become conscious of and do critically reflect on the contextuality of knowledge and value frameworks. This concept is distinguished from a widespread understanding of self-directed learning solely in terms of

being in command of self-instructional techniques.

10. Supportive leader behaviour: This term describes a leader's behaviour that is characterized by giving consideration to the needs of students, displaying concern for their welfare, and creating a friendly climate in the classroom.

11. Teaching behaviour: In this study the term is used for the composite of teachers' verbal statements and actions when interacting with students during class and beyond actual teaching time.

Outline of Subsequent Chapters

Chapter Two first provides a rationale for pursuing research on adult education in higher education settings. Then, it introduces the pragmatic approach to adult education as advocated by Eduard Lindeman and describes the various influences of psychological findings on the practice of adult education. Malcolm Knowles' concept of "andragogy" is introduced and is contrasted with Freire's concept of conscientization and Mezirow's theory of transformative learning. Habermas' impact on Mezirow's work is highlighted. Then, the postmodern critique of the Enlightenment's project, which holds that emancipation will be reached through rationality and reasoning, is introduced, and the similarities and differences with Habermas' ideas are discussed. Finally each of the six variables, plus the theoretical framework chosen for the current study, path-goal theory, are discussed in depth while literature, containing both conceptual discussions and empirical studies, is presented.

Chapter Three describes the methodology of the study. The

methodology is discussed in terms of the research paradigms the study is located in, the research design, sample, instruments, data collection procedures and methods of analyses.

Chapter Four introduces the results of the study. The results from the qualitative data analyses are discussed in more depth.

Chapter Five discusses the results of this study, in terms of its limitations and the implications the findings have for theory and for teaching in the higher education setting. The chapter concludes with some suggestions for future research.

CHAPTER TWO: REVIEW OF THE LITERATURE

Adult Education versus Higher Education?

I have always been puzzled by the distinction that some academics draw between higher education and adult education. To me, college teaching is the teaching of people who are partially or fully immersed in the experience of adulthood. In this sense, college teaching is adult education (Brookfield, 1990, p.xv).

In The Skilful Teacher Brookfield (1990) demonstrates clearly how the teaching practice in higher education can benefit from insights gained from research in the field of adult education. He makes a strong argument against the artificial distinction which has been drawn between adult education on the one side and higher education, here the education of university and college students, on the other. The existence of a rich research-based literature in the field of adult learning and education that has been produced over the last two decades, he argues, has been widely ignored by scholars in the discipline of higher education.

One reason for this is that adult education has been defined in a variety of ways, but no definition has stated explicitly that people involved in higher education, that is university and college students as well as faculty, are participating in adult education. For some, this is common sense, for others an enlightening insight. A second reason is that adult education is often equated with "staff development", "manpower development", "continuing education" or "human resource development" (Knowles, 1980).

Tough's (1979) definition of adult learning as "sustained, highly deliberate efforts to learn knowledge or skill" (p.5), obviously includes learning undertaken in postsecondary institutions but his definition seems rather impractical as it seems to suggest that almost anything adults do could be considered as adult learning. A quite different stance is taken by the National Centre for Education Statistics (1980) which defined adult education

as courses and other educational activities, organized by a teacher or sponsoring agency, and taken by persons beyond compulsory school age. Excluded is full-time attendance in a program leading toward a high-school diploma or an academic degree (cited in Cross, 1990a, p.51).

This definition is critical for two reasons. First, it excludes postsecondary education (the pursuit of learning in a degree program) altogether. It also eliminates privately organized learning such as the democratic neighbourhood discussion groups Lindeman (1926) called for in the twenties. Thus, this definition, in the strict sense, deprives adult education of its basic historical foundation.

Even Knowles (1980), in an attempt to clarify the functions of adult education, distinguishes sharply between adult and higher education (post-secondary education) by saying

People have little difficulty getting a clear picture of what elementary education is (it is what goes on in the red brick building with little

children) or what secondary education is (it is what goes on with adolescents in those bigger buildings near the football stadium) or what higher education is (*it is what goes on in those enormous college and university complexes, with youth* [emphasis added]). But adult education is much harder to picture ...(p.25).

This reasoning does not only exclude higher education (postsecondary education) from the scope of adult education but does so by using the brusque argument that students of higher education (postsecondary education) are generally not to be considered adults. This, however, is questionable. Knowles (1980), defining an adult in social and psychological terms, writes:

a person is adult to the extent that that individual is performing social roles typically assigned by our culture to those it considers to be adults - the roles of worker, spouse, parent, responsible citizen ... A person is adult to the extent that that individual *perceives* [emphasis added] herself or himself to be essentially responsible for her or his life (p.24).

This definition seems reasonable at first sight. However, there is no reason to conclude that college or university students generally do not meet these criteria, which is implied when one recalls Knowles' statement on what constitutes adult education. In addition to that, this definition becomes ethically critical the very moment it is utilized in order to make a judgement as to who in our society should receive adult education and who should not. Knowles acknowledges that the concept of adult roles is no longer that clear-cut today,

and that there are many youth who have to take on adult roles. However, to the extent that adult education sees its audience merely as those who perceive themselves as adults and assume adult roles, it implicitly releases itself from any responsibility to facilitate people in the process of assuming these roles. The question remains as to whether or not adult education also has a role to play in helping people to become more responsible, more mature, more aware of their social roles, in one word, more adult. This argument follows a reasoning already advocated by Merriam and Darkenwald (1982) who made a similar case when they defined the mission of adult education as "... not preparatory so much as it is one of assistance - helping adults to realize their potential, make good decisions in general, better carry out the duties and responsibilities inherent in the adult role" (p.77). This question will be further discussed in the main part of this chapter.

A useful definition of adult education is provided by Cranton (1992) who describes it as "the set of activities or experiences engaged in by adults which leads to changes in thinking, values, or behaviour" (p.3). Learning in higher education clearly is included in this notion of adult education. An adult, she describes similarly to Knowles as "someone who has assumed the social roles of adulthood in his or her culture or subculture" (p.3). What these social roles are is not further specified; however, they are not expected to be performed as definitely as Knowles' definition suggests. This is made explicit by her description of the role of the adult educator: "The adult educator works with

individuals to stimulate, facilitate, encourage, support, and challenge people to change and grow " (Cranton, 1992, p.63). This also means that students of adult education should be provided the opportunity to learn about their social roles, to grow into mature and self-directed persons who are fully aware of their responsibilities and rights.

Many theorists in adult education emphasize the responsibility of adult educators to help people to participate more fully and responsibly in society (Brookfield, 1986, 1987a, 1990; Candy, 1991; Freire, 1970, Mezirow, 1985, 1991a, 1991b). It might only be a matter of time until a more conclusive definition of adult education will be introduced.

Over the last three decades research in adult education has increased tremendously (Jarvis, 1991). Recently there has also been a trend observable in conducting adult education research in post-secondary institutions (Fulton, 1990; Grabove, in process; Herbeson, 1990; Wilcox, 1990). This suggests an evolving understanding among adult education scholars to view universities and colleges not only as settings which can benefit from research findings from the field of adult education, but at the same time, as places where knowledge about adult learning and teaching can be found and created. It is in this sense that the present study hoped to make a contribution to the field.

Adult Education as a Field of Study

The Pragmatic Approach

The beginnings of adult education in North America are commonly traced back to Eduard Lindeman and the establishment of democratic neighbourhood discussion groups. For Lindeman, a contemporary of John Dewey and, like Dewey, a pragmatist, adult education basically was social and political in nature and aimed at changing society. However, in his best known work The Meaning of Adult Education (1926) he "urged educators to orient themselves as much to the social reality in which adults lived, as to individual persons" (Brookfield, 1987b, p.17). In a short essay entitled "Adult Education for Social Change" Lindeman (1937) states his understanding of adult education most succinctly:

The complete objective of adult education is to synchronize the democratic and the learning processes. Social education is the operating alternative for dominance, dictatorship, and violence. The adult learner is not merely engaged in the pursuit of knowledge: he (sic) is experimenting with himself; he (sic) is testing his incentives in the light of knowledge; he (sic) is , in short, changing his habits, learning to live on behalf of new motivations (Lindeman, 1937, edited by Brookfield, 1987b, p.77).

Like Dewey (1916, 1933, 1938), Lindeman saw subject and object, or individual and society in a transactional relationship. They both recognized the necessity of experiences to be real; i.e., relevant, and continuous, and they

emphasized that learners should be challenged to reconstruct these experiences as a result of critical reflection. Bullough (1988) points out that Lindeman had "perhaps the broader political perspective" (p.297), by focusing on social action as a **result** of involvement in educational experiences that are democratic in nature.

Research in Psychology

Since adult education as a field of study emerged in 1926 (Knowles, 1980), it has borrowed heavily from other disciplines. Within psychology the behaviourists, humanists, and developmental psychologists were to have an impact on the practice of adult education.

The behaviourists (Skinner, 1953) tried to explain human behaviour as a function of operant conditioning. The impact of this concept, where learning is broken into small steps and positive reinforcement is provided after each step, can be found in individualized learning packages. However, the behaviourists ignored the cognitive and affective domains of learning.

The developmental psychologists can be divided into two broad groups, those who studied adult development in terms of life-stages, focusing on ego development (Loevinger, 1976), intellectual development (Perry, 1970), and moral development (Kohlberg, 1984), and those who studied the life-phases (Gould, 1972; Levinson, Darrow, Klein, & McKee, 1974) adults go through during a life time. The relevance for adult education lies in the insight that adults are most ready to learn when they are at a transition point (from on

life-phase to another), and if challenged and supported can progress towards higher stages of development (Cross, 1990a).

The humanists (Rogers, 1951, 1969; Maslow, 1968) in contrast, were mainly concerned with fostering self-actualization. They emphasized the necessity of an atmosphere that is conducive for learning, downplayed grading and the role of the teachers, and fostered interaction among people. Malcolm Knowles' andragogy concept is mainly located in the humanist tradition.

Andragogy

The term andragogy is strongly associated with Malcolm Knowles (1980; 1984) and his concept of self-directed learning. Brookfield pointed out that Lindeman used the term already in the twenties to describe the learning process that occurs when adults come into conflict with previously untested conceptions and explore opposing viewpoints (Brookfield, 1987b). This understanding, however, which is almost congruent with the critical theorists' (Freire, 1970, 1973; Mezirow, 1981, 1985a, 1991a, 1991b) notion of education, does not describe Knowles' andragogy concept.

Knowles defined "andragogy" originally as the art and science of helping adults learn, in contrast to "pedagogy", the art and science of teaching children (Knowles, 1980). Later he revoked the dichotomous character of this definition and considered pedagogy and andragogy as the two ends of a continuum (from pedagogy to andragogy). "Andragogy", which is essentially humanistic in nature, is based on certain assumptions (described below) about the adult

learner which have been widely used to derive principles of adult learning (Brundage & Mackeracher, 1980). These assumptions include: adults are ready to learn when they feel a need to learn; adults are performance-centered in their learning; adults attach more meaning to learning they gain from experience; and adults have a deep psychological need to be generally self-directing (Knowles, 1980). Knowles' self-directed learning model includes self-diagnosis of learning needs, the students' involvement in the planning his or her own learning, the students' responsibility in conducting learning experiences, and self-evaluation (Knowles, 1980, 1984).

A new direction to adult education has been introduced by Brookfield (1985a, 1986, 1987a, 1990), who strongly denounced the concept of the adult educator as a mere technician who sees his or her only responsibility in meeting learners' expressed needs. Brookfield criticizes not so much Knowles' andragogical model as the widespread misinterpretation of that concept (Cranton, 1992). Brookfield's contribution to adult education is the call on the educator of adults to be a "provocateur" and "challenger" who prompts the learners to critically reflect on the assumptions underlying their values, beliefs, and actions, while simultaneously providing the necessary support. At the same time, he urges educators to reflect on their own actions and to develop a theory-of-practice.

Brookfield's understanding of self-directed learning will be dealt with in a different section.

Critical Theorists

Freire's (1970) concept of conscientization and Mezirow's (1978, 1981, 1985, 1991a, 1991b) theory of perspective transformation aim at social change. Both hold as an essential principle that, only in truly dialogical situations, can assumptions be questioned and tested for their validity. "True dialogue cannot exist unless the dialoguers engage in critical thinking" (Freire, 1970, p.81). "The educator helps the learner ... to identify ... alternative sets of assumptions and test their validity through effective participation in reflective dialogue" (Mezirow, 1991a, p.224).

Conscientization

Freire (1970) criticizes the banking concept of education with its tendency to dichotomize the teacher's world and the student's world (the teacher is in control of all decisions) and calls for a "problem posing" approach in which the dualism of action and reflection is abolished, and action and reflection are reconciled and merged in a responsible praxis or dialogue where students are empowered. In short, Freire's philosophy can be described as such: men (sic) are "beings of praxis" (p.119), they are creative beings who act in function of the objectives they propose. They are contrasted from animals which are merely "beings of pure activity" (p.119), fully immersed in the world by their ahistoricity and "lack of self-consciousness" (p.88). This is in tune with Heidegger's notion of "being". In trying to describe the nature of "being",

Heidegger (cited in Biemel, 1991) distinguished between "Dasein" (being-in-the-world) and "Sein" (being), concluding, that "Dasein" does only pertain to the human being who is "in-the-world", in the sense, that he or she can consciously relate to him or herself (Ger. "sich zu sich selbst verhalten") and interact with the world. "Dasein" for Heidegger is congruent with "existence". "Existence" is rendered possible through the capacity to reason and is ontologically different from mere "being" which pertains exclusively to non-human beings who cannot consciously relate to themselves and others (Ger. "kann sich nicht zu sich selbst verhalten"). Heidegger concludes that the specific feature of "being", that distinguishes the human being from non-human beings, is his or her self-consciousness. However, the consequence of the human "Dasein" (being-in-the-world) is his or her "Zu-sein" (have-to-be), meaning, that human beings through their ability to reason are doomed to consciousness. In further distinguishing between "Eigentlichkeit" and "Uneigentlichkeit" of "being" Heidegger suggests that people have a choice to either be active and choose to find to themselves and look for possibilities to self-actualize ("Eigentlichkeit"), or to be passive and choose to adjust to an anonymous state of "what one does" ("Uneigentlichkeit") (Biemel, 1991). The same idea is followed up by Freire. Because men (sic) are historical they have self-consciousness and can transcend and objectify the world, and thus transform it. Transformation is the result of praxis, that is reflection and action, theory and practice. Conscientization occurs when people, through reflection, start to perceive their

situation as historical and changeable and take action to transform it (Freire, 1970).

Perspective Transformation

Mezirow's theory of perspective transformation is highly influenced by the German critical theorist Jürgen Habermas (1971, 1981). Following Habermas's (1971) interest-knowledge-science triad, Mezirow (1981) identified three domains of learning, the instrumental, the communicative, and the emancipatory. Although adult learning can take place in each of these three domains, his theory of perspective transformation is initially exclusively located in the emancipatory domain. Influenced by Habermas' (1981) theory of communicative action, which emphasizes critical discourse in each interest-knowledge-science category, Mezirow (1985a, 1991a, 1991b) states that emancipatory learning can pertain to both instrumental and communicative learning. He explains how assumptions people hold about themselves and the world might be socioculturally, psychologically or epistemically distorted and how people can overcome these distortions. Overcoming these distortions means to transform their *meaning schemes*, which are defined as the specific values and beliefs underlying their argumentations and actions, or their *meaning perspectives*, which are conceived of as sets of related meaning schemes, that is the more general view, philosophy or rationale they hold which guides them in their daily lives. The latter he considers the most essential learning in adulthood (Mezirow, 1985a, 1991a). Merriam and Clark (1991) discuss three

dimensions for significant learning in adulthood and introduce the concept of "*expansion* [emphasis added]" in the dimensions of "skills and abilities, sense of the self, and life perspective" (p.207). If the learning experience is valued by the individual and occurs in more than one of the three dimensions, that is it "involves the whole person" (p.207), *expansion* can lead to *transformation*. Merriam's and Clark's concept of *expansion* then is to be equated with Mezirow's (1991) notions of "learning new meaning schemes" (p.5) and "transformation of meaning schemes" (p.6). Their idea of "transformation" is congruent with Mezirow's *perspective* transformation. This shows that the terminology used to describe this kind of learning varies in the literature.

Mezirow (1991) holds that the means for overcoming distorted assumptions are critical (self)-reflection and critical discourse as suggested by Habermas (1981) in his theory of communicative action. Habermas' notion is that communication in society is distorted as a result of the colonization of many parts of the lifeworld (according to Husserl the lifeworld is the pre-reflective world of the whole of lived experience (Manen, 1990) by the system world. Distorted communication can only be overcome, or emancipation can only be reached, by accomplishing the grand ideals of the enlightenment, which to date have been unachieved promises (Giroux, 1991). These "grand narratives" might best be captured by the three catch words of the French Revolution "Liberté, Egalité, et Fraternité" which basically were a call for emancipation from domination. It is Habermas' notion that rationality today is

characterized by instrumental reason which has spread out to many areas of social life. Practical problems are treated as technical issues. This "technocratic consciousness" (Held, 1980, p.254) does not only justify particular class interests but also predetermines the interests of society. However, through self-reflection people should arrive at a new self-understanding which has a potential to change society. This is Habermas' concern in "Knowledge and human interests"(1971). In his more recent theory of communicative action he argues that rationality can be reached by engaging in critical discourse which is structured by so-called ideal speech conditions (Habermas, 1981). The distinctive feature of discourse is that validity claims, tacitly accepted in everyday communication, need to be justified through argumentation (Ewert, 1991). The three validity claims, truth, rightness, and truthfulness, as identified by Habermas, constitute the criteria for rationality for all speech acts.

Habermas' distinction between a genuine and a false consensus is important. Habermas' notion is that all speech is oriented to the idea of a genuine consensus. The final criterion for the truth of the statement is then a discursively achieved consensus. "The validity of truth claims or norms can be redeemed only through argumentation in, respectively, a 'theoretical-empirical' and 'practical' discourse" (Held, 1980, p.341). Communication is distorted when the ideal speech conditions are not fulfilled. Ewert (1991) summarizes these conditions for reaching a rational consensus as follows: freedom to reach an agreement on the basis of the better argument alone, mutual respect among

participants, equal power relationships among participants, and no withholding of relevant information. The ideal speech conditions, for Mezirow, also constitute the ideal conditions of learning (Mezirow, 1991a). Emancipation is the process of identifying systems of distorted communication and successfully transforming these situations. Critical reflection is at the centre of this understanding. The goal is emancipation from distorted communication which must finally result in social action. For Mezirow (1981, 1985, 1991a, 1991b), a transformation of meaning perspective is only complete when it results in action. Criticized by Collard and Law (1989) and Hart (1990) for using a major part of Habermas' work (1971, 1981) without doing justice to the demand for collective action behind Habermas' writings, Mezirow (1991a) devotes more attention to the issue of social action in his latest work on transformation theory. There he states:

Adult learning transforms meaning perspectives not society. The aspect of transformative learning that relates most closely to education for social action is resulting from transformations in sociolinguistic meaning perspectives (Mezirow, 1991a, p.208).

However, the question whether a theory of adult learning should aim at social action or should focus on individual personal development remains an unresolved issue among adult education scholars. During the symposium of the 34th Annual Adult Education Research Conference (AERC) at Penn State University in Pennsylvania (1993), Jack Mezirow was willing to engage in a

lively debate on different conceptions of what transformative learning in adulthood means. Other scholars on the panel were Phyllis Cunningham, Sue Scott, and Mechthild Hart (who could not actually attend but whose views were still presented). During the discussion it became evident that the various interpretations of transformation theory (TF) can be placed on a continuum, where TF as primarily a personal learning experience represents the one end of the spectrum and TF as predominately a social experience the other. Scott's understanding of TF is embedded in Carl Jung's concept of individuation and is hence primarily seen as a personal experience whereas Cunningham argues that there cannot be any personal transformation without social transformation. Power relationships need to be changed because people reproduce the social or ideological. In other words, the personal position is predetermined by the system. Hart also sees a political dimension involved in TF; her view is that transformative learning is a personal process but that societal problems need to be problematized and analysed in the classroom. She sees the personal and the societal as interdependent. The argument is that there is a political dimension to each individual or personal transformative experience. Mezirow stresses the importance of critical reflection, discourse, and reflective action. However, he emphasizes that not every personal transformative learning experience needs to result in social action. Only if sociocultural meaning schemes or perspectives have been identified as distorted in critical discourse, the possibility for social action is given. He envisions a reflective, inclusive, and

participatory democracy, and argues that "we have to make this society through personal transformation" (Mezirow, 1993, p.187). In conclusion it can be said that Mezirow and Scott are fairly close in their understanding of TF and can both be placed on the personal end of the scale. Hart acknowledges the personal but is further oriented to the social dimension than Mezirow and Scott and hence represents the middle of the spectrum. Phyllis Cunningham's views align best with the political/social end of the continuum. As this brief recapitulation of a small selection of scholarly "voices" from the AERC symposium (1993) may illustrate, the concept of transformative learning, similarly to the idea of self-directed learning which will be dealt with in a different section, is subject to a magnitude of different interpretations. Whether or not this diversity in opinion gives reason to believe that today's adult educators are generally resistant to "groupthink" is a question worth posing. The second and maybe more interesting question, because conceptually more relevant, however, is whether Mezirow's very idea of a rational consensus will ever be reached on the topic. Critical discourse on transformative learning theory, at least, is likely to proceed.

The Postmodernists' Critique

The Enlightenment promised to achieve social emancipation by accumulating knowledge through reason and rationality and utilizing this knowledge for a more satisfying, enriching and rational organization of everyday life (Giroux, 1991; Holub, 1991; Misgeld, 1992). However, it has become

apparent that technological development and political systems can be used for the most horrible crimes against humanity, such as the holocaust or the use of the nuclear bomb on Hiroshima. Facing this reality, the question Habermas is most concerned with is whether societies can develop a rational identity (Misgeld, 1992), that is, "can they develop as much morally, socially, and politically as they do technologically, scientifically and economically" (Misgeld, 1992, p.167)? It is Habermas' (1981) notion that the project of the Enlightenment is still to be redeemed, and this is possible, theoretically, through critical discourse which is subject to ideal speech conditions. The ultimate value of this critical theory is the freely developing communication of citizens (Misgeld, 1992). Habermas' (1981) theory of communicative action can be understood as a reaction to the postmodern movement, which has arisen out of a growing awareness that the ideals of the Enlightenment, freedom, justice, and equality, have not been accomplished to date, and the conclusion, that the master narratives of the eighteenth and nineteenth century have lost their validity in the (post)modern world which is characterized by contingency and difference. According to this notion, rationality and reason, the chief pillars on which the project of the Enlightenment is based, are to be dismissed as they have proven to be wanting and do not lead to the desired ends. As a critical theorist, Habermas shares the postmodern concern that the modern world is dominated by instrumental rationality and injustice in many realms, but at the same time he also acknowledges the advantages that the developments in this

sphere of reasoning entail (Giroux, 1991). However, it is exactly through his distinction between communicative and instrumental reason, that Habermas (1981) attempts to obliterate the contradiction between the promises of the Enlightenment and the status quo, and to achieve the ideal of emancipation. As Thomas McCarthy illustrates, "Habermas believes that the defects of the Enlightenment can only be made good by further enlightenment. The totalized critique of reason (*Postmodernists' Critique*, [not in original quote]) undercuts the capacity of reason to be critical" (McCarthy, 1987, cited in Giroux, 1991, p.15). The postmodern critique is not a critique of the end, which is emancipation from coercion, "i.e., the freedom from longstanding historical constraints on personal and social development" (Misgeld, 1992, p.53), but of the means of Habermas' approach as to how this goal can be accomplished. The emphasis on rationality, and on what exactly constitutes rationality in our society, in Habermas' (and Mezirow's) theory, is the core of the postmodern critique. Giroux (1991) states that Habermas' view of modernity is "too complicitous with a notion of reason that is used to legitimate the superiority of a culture that is primarily white, male, and Eurocentric" (p.16). Elsewhere he states that Habermas' work "does not adequately engage the relationship between discourse and power and the messy material relations of class, race, and gender" (p.16). Postmodernism conceives of itself as a discourse of plurality, difference and multinarratives. Any claims for absolute foundations, explanatory systems and reason are negated. It is a critique of high or elite-

culture and challenges the view that Eurocentric culture is superior to other cultures. Postmodernism challenges the way knowledge is traditionally produced and offers new discourses by taking up objects and involving groups that were unrepresented in the dominant discourses so far. It focuses therefore on the margins of society and is engaged in making their "voices" heard.

Writers such as Peter McLaren (1991) and Henry Giroux (1991) point out the inadequacies of modernist master narratives' attempt to conduct today's society. The overintellectualization of language, an artificial disconnection of mind (cognitive) from body (creative and emotive), the application of modernist standards of what is regarded as desirable and worthwhile in the present society and culture are some of the problems identified. Lindeman (1926), seven decades earlier, also called for overcoming the "restrictions" the grand achievements of modernity and Enlightenment have imposed on people. It was his view, that what was currently assumed in society as cultural values should be newly defined. Adult education had to play a major role in achieving this. An officialized culture was dominant in society at the expense or real enjoyment. Instead of indoctrinating students with preconceived standards of what constituted good music, painting, literature etc., adult educators should begin by discovering what people really find enjoyable (Lindeman 1926).

Lindeman also criticized the overemphasis on rationality and reason by arguing that our feelings were still as fundamental as our thoughts. Lindeman argued as a true pragmatist by saying that the dualism between thinking and feeling

needs to be broken, that there is only one personality, and thinking as well as feeling are part of this.

In conclusion, it can be argued that adult education, as advocated by Lindeman, Brookfield, Freire and Mezirow, plays a major role in shaping society. It questions the status quo, is intrinsically action-oriented, and connects the issue of personal growth with social change. In its centre rests the ideal of a lived democracy with its core concept of critical thinking.

Personal Philosophy of Practice

Generally speaking, philosophies provide a rationale for educational practice (Lawson, 1991; Ozmon & Graver, 1990). Lawson points out that adult educators work either explicitly or implicitly from particular philosophical perspectives such as humanism, existentialism, or pragmatism. "Such philosophical perspectives may also be implicit in educational thought and practice but are not recognized as such by adult educators" (Lawson, 1991, p.282). Zinn (1990), who argues that "education has as a central focus an intent to effect change" (p.41), writes that the philosophical orientation a person follows is made explicit by the direction this change is supposed to take. Whether change is understood as an increase in knowledge, the acquisition or improvement of a skill, or a change in attitude or behaviour, is indicative for the philosophical stance an educator assumes. Scott, Chovanec, and Young (1993) define philosophies as "value-laden sets of assumptions that teachers often enact without much critical insight or reflection" (p.233). Without those,

however, they argue, changing or enhancing one's teaching practice is unlikely to occur. Scott et al. also emphasize that

many teachers in university settings have little time or opportunity to dialogue or systematically reflect on the relationship between philosophy and teaching practice. Indeed, many come to university teaching appointments without any formal preparation in teaching (p.233).

Gleason-Weimer (1987) defines a theory of teaching as "the collection of assumptions and beliefs that forms the bedrock beneath the more visible activities of teaching. It's the rationale behind what we do in the classroom" (p.1).

The term philosophy comprises at least three broad meanings. It pertains to a distinct field of study, to particular techniques of study and analysis as existent in the three different research paradigms currently evident in education, or to a system of thought. If the last of these meanings is considered it can be argued that every person has a philosophy to the extent that this person's actions and judgements are guided by a set of beliefs and values (Lawson, 1991).

Educators such as Lindeman (1926), Dewey (1916, 1933, 1938), Knowles (1980, 1984), Freire (1970), Mezirow (1975, 1977, 1981, 1985a, 1985b, 1991a, 1991b) and Brookfield (1986, 1987a, 1990) made their philosophy of teaching or education explicit in their practice, that is through their writings and also by assuming the role of the educator. Thus practice for them

was inevitably combined with reflection. With the exception of Knowles, whose philosophy can be broadly described as "andragogy", these educators shared a similar or at least compatible philosophy. Whether one calls it pragmatism, conscientization, or perspective transformation, in the centre of their beliefs about education was the notion of critical thinking and autonomy.

Brookfield (1990) calls on the higher education teacher to develop a personal vision of teaching, that is a personal philosophy of practice. Smyth (1986) describes a critical rationale for practice as a set of values, beliefs, and convictions about the essential forms and fundamental purposes of teaching. In an emphatic statement regarding the purpose of teaching and rationale building in higher education, Brookfield highlights the main assumptions under which the present study is conducted. Because of its inclusiveness, preciseness, forcefulness, and appropriateness it will be quoted at this point in almost its full length:

Develop a philosophy of practice, a critical rationale for why you are doing what you are doing... Your vision will also help your students feel that they are under the influence of someone who is moved by well-thought out convictions and commitments. Without a personal organizing vision we are rudderless vessels tossed around on the waves and currents of whatever political whims and fashions are prevalent at the time. Skilful teachers are critically responsive teachers...they have a clear rationale for their practice. The organizing vision for college

teaching ... is the fostering of the critical thinking necessary for students to be able to reflect on the habitual assumptions underlying their actions and ideas. Such thinking is also central to building a democratic society with a political culture that is informed in values of freedom, fairness, justice, and compassion (Brookfield, 1990, pp.195-196).

It is in this sense that a philosophy of practice is likely to make a difference in teaching behaviour. If people know why they are doing what they are doing they are more likely to do it well. Only if own beliefs about teaching or education have been made explicit, does one have the possibility of comparing practice to one's standards and ideals. Beliefs about education can be made explicit through a sound rationale. Brookfield (1986) identified a clear definition of the educational activity, some statements of purpose derived from this definition, and a set of clear criteria by which the various practitioner efforts can be judged in terms of their effectiveness, as the most crucial components of a critical rationale. Facilitation, he considered effective

when adults come to appreciate the relative, provisional, and contextual nature of public and private knowledge and when they come to understand that the belief systems, value frameworks, and moral codes informing their conduct are culturally constructed (Brookfield, 1986, p.293).

The works of Argyris and Schön (1974), Schön (1983, 1987), Kemmis and Carr (1986), and Cranton (1992) also emphasize the necessity of

developing a theory of practice. Novak (1990, 1992) describes "invitational theory" as a theory of practice which is located in the framework of George Kelly's (1955) personal construct theory and Dewey's philosophy:

Both emphasized the process by which theories develop within the dynamics of individual and social practices, are put into more abstract form for analysis and refinement, yet need to be continually returned to practice for validation and extension (Novak, 1990, p.236).

By calling on teachers to take on an inviting stance, with themselves and with others, and to establish communities of inquiry which allow individuals to participate in communication in order to develop more elaborate theories of the world, "invitational theory" attempts to reduce the gap between the personal and the public and tries to provide a sound rationale for educational endeavours. It is in this sense that Dewey's (1916) notion of "education as the laboratory in which philosophic distinctions become concrete and tested" (p. 329) reaches its ultimate fulfillment.

Argyris and Schön (1974) call a theory of practice "theory-in-use" and contrast this operational theory from what they label "espoused theory".

"Theories-in-use" are built whenever practitioners draw upon their own experiences, examine the situation carefully, and let themselves be guided by their own insights and intuition as to what needs to be done in the present situation. However, people are often not aware of their theory-in-use but when asked how they would react in a certain situation explain and justify their

behaviour with "espoused theory". Espoused theories are those models of practice which most often are developed by "experts", derived from books or other formal sources and are just taken for granted without examining the compatibility of the values and beliefs implied in them with the values and beliefs the person really holds and are expressed in his or her theory-in-use. For this reason there are often discrepancies between what people think they do and what they really do in their practice. Schön (1983; 1987) created the expression of the "reflective practitioner", who is essentially involved in "problem setting" and "reflection-in-action". Reflective practitioners are generating their own theory of practice, while they continuously reflect on the reasons and purposes underlying their action.

In a study investigating the implicit theories of action held by twenty graduate teaching assistants from the humanities and social sciences departments in one university, Menges and Rando (1989) asked the teaching assistants what they mean by teaching, how they respond to everyday classroom events, and about assumptions they make in terms of these events. The goal of the study was to differentiate between a theoretical orientation, a personal disposition that directs the diagnosis of events, and the actual action taken by the teacher. They found that the teaching assistants followed primarily one of three basic theoretical orientations in teaching: an understanding that teaching means the transmission of content, a view that teaching should emphasize process, e.g., the development of thinking skills, and a perspective

which describes teaching essentially as an act of motivating students. The authors argued that these articulated statements reflect the espoused theory. Theories of action, however, can be conceived of as a combination of espoused theory which can easily be made explicit and implicitly held theory-in-use. Propositions or beliefs and assumptions that teachers hold about, for instance, learning processes, student characteristics, communication dynamics are part of the implicit theory-in-use. In diagnosing problem situations the teachers differed in whether they based their diagnosis on assumptions or whether they did some further inquiry on the situation. However, in this study most of the teachers seemed to rely on assumptions; only very few seemed to engage in further inquiry. Therefore no patterns between the diagnosis of the event and the actual action taken could be identified. However, a relationship between what people mean by teaching and how they deal with a given problem situation was discernible. The authors conclude that the action applied to solve a classroom problem can be the result of reflective or a reflexive process. The process is reflective when teachers think about the event in terms of theory, make a diagnosis of the event, and take action on the basis of this diagnosis. The process is reflexive when theoretical concepts (the primary orientation one aligns with) and the diagnosis phase are skirted and action is automatically taken. Speaking of teaching development programs, the authors suggest that more emphasis should be placed on the way how people diagnose events, as this diagnosis is the reflection of their attitudes, beliefs and assumptions which

should be made explicit and finally critically examined. Flannery and Wislock (1991) suggest that there are three actions which keep a working philosophy vital. First, to become aware of one's philosophy, second, to engage in an ongoing evaluation of that philosophy, and third, to reflect on how this philosophy is carried out in practice. The ongoing scrutiny and evaluation of one's philosophy is seen as paramount. Suggestions given to facilitate this process include engaging in honest self-reflection, examining the philosophies of others and becoming familiar with established educational philosophies, talking to others about their beliefs, considering the strengths of one's own beliefs, considering the organizational setting one is working in and the philosophy underlying its overall practice, and finally to make it explicit in writing.

Theories of practice can take on many different forms. A theory of practice that is made explicit is still not synonymous with a responsible or reasonable practice. It depends on the capacity for critical reflectivity and mature judgement of the individual who makes his or her assumptions about teaching explicit whether he or she will either confirm or reject and change these assumptions. An individual who does not value self-directedness or critical thinking as major objectives in higher education is unlikely to foster these skills in the students.

Fox (1983) suggested that there were four personal theories of teaching which could be divided into two broad categories he labelled "simple" and

"developed" (p.152). By making use of metaphors, he described the first category as consisting of two theories, the transfer and the shaping theory. While the transfer theory views the student as a "container or vessel to be filled" (p. 152) the second conceives of the student as "clay or wood or metal to be shaped or moulded into a predetermined form" (p. 152). These two approaches which are both characterized by a high degree of control accumulated in the hands of the instructor could be most often found with new instructors. It is Fox's view that as teachers mature and become more experienced they are more likely to reflect upon their roles and give up a certain degree of control. They view the student more as a partner. "The essential point of simple theories is that the teacher is ... in total control of the commodity being transferred (transfer theory) or of the shape and size of the finished product (shaping theory)" (p. 155). Within the category of the "developed" theories he identified the travelling and the growing theory. The first theory sees the instructor as a guide or leader whereby it is acknowledged that the teacher is still exploring and the students are co-researchers or co-investigators contributing with their experiences and insights. Advocates of the growing theory also hold that the students make contributions to the direction and purpose of their learning but place greater emphasis on the student as a person. Individual development is the priority, whereas in travelling theory the emphasis rests with the subject matter. The students are the primary subjects in the learning process, they do the learning, the teacher is a facilitator who is

in charge of creating the conditions that facilitate learners' growth. Gleason-Weimer (1987) criticized Fox for not taking into account differences in disciplines which might well have a direct influence on the approach a teacher follows. Instead of pursuing strictly one of the four theories as identified by Fox, she suggested that the best theory might combine elements from each of the four approaches while she acknowledges at the same time that "the world of teaching is far too complex to imagine there are only four theories of teaching" (p.2).

Apps (1973) suggested that adult educators undergo a systematic analysis of the philosophy they are working from. Beliefs should be identified on the basis of five categories he labelled "beliefs about the learner", "the role of the adult educator", "the overall purpose of adult education", "the content or subject matter", and "the learning process". A recent study (Scott et al., 1993) entitled Philosophy-in-Action in University Teaching investigated the relationship between faculty's philosophy of teaching and their practice in the classroom by using a grounded theory approach as described by Strauss and Corbin (1990). Data on faculty's philosophy-in-action were collected by semi-structured interviews and observations of 14 faculty from different disciplines, who self-defined the philosophical orientation they thought they aligned with best. A literature review on the philosophies of teaching and dominant theories in use in higher education showed that there are five perspectives prevailing in higher education teaching. These are the "traditional mental discipline, behaviorist,

andragogy, critical pedagogy, and feminist pedagogy" (Scott et al., 1993, p.233). Each of these perspectives revealed six dimensions, which showed some congruency to the five categories as identified by Apps (1973) and were summarized as "assumptions about teaching and learning", "a view of the learner", "the role of the teacher", "methods and strategies used", "evaluation", and "constraints and resistances". The collected data allowed to group the participating instructors into three broader categories, which the researchers labelled the traditional, the humanist-critical, and critical pedagogy. The assumptions within the six dimensions of a teaching philosophy were distinct for each of the three philosophical orientations. Four phenomena emerged from the data of this study which were viewed qualitatively different by instructors from different philosophical orientations. These categories or phenomena were "Expert vs. co-learner, relationship of comfort for critique, learning for change, and coping with constraints" (Scott et al., 1993, p.237). The researchers concluded that the philosophy of practice faculty hold makes a difference in the way roles are defined in the teaching-learning-interaction, the way methods and strategies are used, the way desirable learning outcomes are defined, and whether or not the higher education institution is seen as restrictive or limiting in terms of allowing to implement or live one's philosophy of practice. Although the study did not directly investigate whether there was a discrepancy between espoused theory and theory-in-use, the researchers found evidence for distorted self-awareness regarding the theory-in-use for some faculty. For two

instructors data from the observations were not compatible with the espoused beliefs about university teaching faculty stated during the interviews, and were hence considered to be most likely not congruent with the real beliefs and assumptions guiding their practice.

Zinn (1990) pointed out that teaching style is to be regarded as the operational behaviour of the teacher's educational philosophy. Conti (1990) who did various field-based research studies on the relationship between teaching style and student performance, shares Zinn's view that one's teaching style is linked to an educational philosophy which again is a function of one's personal broader life philosophy. The reflective practitioner should therefore identify his or her teaching style and strive for consistency between teaching style and educational philosophy. The results of the research studies conducted by Conti (1984), Conti and Welborn (1986), and Conti and Fellenz (1988) indicated that teaching style, as identified by the Principles of Adult Learning Scale (PALS), a scale developed by Conti which identifies teaching style through seven independent factors, had a significant influence on student performance. A second finding was that different styles "could be effective when practiced to the proper degree in a given situation" (Conti, 1990, p. 87).

The present study was conducted under the assumption that the theory of practice, or philosophy of practice, as distinguished from merely espoused theory, educators hold, will have a direct influence on their teaching behaviour. The reviewed literature supports this assumption.

Critical Thinking

Critical thinking is by far not a new concept in education and can be traced back at least to Plato (427 - 347 B.C) and his opening of the "Academy" where students and professors engaged in the method of the dialectic to come closer to agreement, and hence closer to truth. Through intensive dialogue, posing thesis against antithesis, Plato believed that people are forced to reexamine their position in order to defend it, and will finally arrive at a more valid synthesis. In our century, John Dewey (1933), and within the adult education literature, Eduard Lindeman (1926), emphasized that education should aim at enhancing the meaning of experience through reflective thought. In How We Think, Dewey (1933) defined reflective thought as "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends" (p.6). Uncritical thinking he associated with "the minimum of reflection" (p.13). Reflective thinking, or critical thinking, to him was originated by a state of doubt and characterized by a willingness to endure a condition of mental disturbance, to suspend immediate judgement and to carry out further systematic inquiry.

More recently the importance of teaching "critical thinking" has been recognized and revitalized as a primary goal of education for both civic and economic reasons (Brookfield, 1987a). Watson and Glaser (1980) write:

The ability to think critically is generally recognized as an important and

pervasive educational objective. It is also considered a desirable outcome of various specific courses, particularly in social studies, mathematics, and science (p.9).

Scriven (1985) cautions teachers not to commit "social suicide" but to live democratic values and to deal with controversial issues in education settings.

However, the term "critical thinking" is open to a variety of different interpretations which is made most explicit by Skinner (1976) who writes: "After reading the various definitions of critical thinking, it becomes clear that agreement upon a single, concise definition of this concept is difficult, if not impossible" (p.293). Paul (1992) made an important distinction between critical thinking as mere rationalizing and defending an existing bias in a more or less atomistic and isolated manner ("atomistic-sophistic") and as challenging previously held beliefs or assumptions ("holistic-socratic"). Whereas the former is primarily concerned with technical reasons, the latter aims at developing emancipatory reason. Only the latter is seen to be of real value to educational practice. As a definition of critical he suggests: "Critical thinking is thinking about your thinking while you're trying to make your thinking better" (p. 7).

Two things he considers paramount in this definition. First, that critical thinking entails self-improvement, and second, that certain standards or criteria exist that are used to make this self-improvement possible by appropriately assessing thinking. Norris and Ennis (1989) define "critical thinking" as "reasonable and reflective thinking that is focused upon deciding what to

believe or do" (p.1). Another definition describes critical thinkers as "appropriately moved by reasons" (Siegel, 1988, p.32). The difference between the first and the second definition is that in the latter the person is not only able to think critically but is disposed to do so. In his book Developing Critical Thinkers Brookfield (1987a) urges the reader not to confuse critical thinking with cynicism. A reflective scepticism does not mean to be cynical, it means to be critically alert regarding any claims made by others for any ultimate truths. It means to test the validity of the information received against one's own experience of the world (Brookfield, 1987a). Being critical also should not falsely be equated with relativism. Relativism would be the consequence of never being committed to any idea or actions, to questioning everything continuously. Critical thinking, instead, is the process that leads to informed decision-making and does not preclude strongly holding certain values and beliefs (Brookfield, 1987a; Meyers, 1986). Brookfield (1987a) and Meyers (1986) also caution the reader not to misinterpret critical thinking as a mere intellectual or cognitive activity. Instead of being only rational and mechanical in nature, critical thinking also comprises emotive aspects. Recognizing the assumptions underlying one's beliefs and behaviours exceeds the cognitive activities such as logical reasoning or scrutinizing arguments. Brookfield (1987a) writes: "The ability to imagine alternatives to one's current ways of thinking and living is one that often entails a deliberate break with rational modes of thought in order to prompt forward leaps in creativity" (p.12). The

necessity of being optimistic as well as being critical is also emphasized. A capacity for imagining alternative possibilities is considered as characteristic of being a critical thinker and as a major characteristic of adulthood (Brookfield, 1987a). Citing Daloz (1986) he states: "The struggle to be something more than the person others have made, to construct and then live up to a set of our own expectations, is one of the most compelling struggles of our adult lives" (Daloz, cited in Brookfield, 1987a, p. 39). This view of critical thinking is far more comprehensive than the usual definitions which focus on cognitive processes such as logical reasoning and problem solving.

Paul (1992) makes the point that creative thinking and critical thinking are intrinsically intertwined. To him, whenever our thinking excels, it does so because we are successful in creating results and outcomes appropriate to our ends. But, he adds, we also need criteria to judge or assess where our thinking is going. His view is best reflected by his statement: "Intellectual work is essential to *create* intellectual products, and that work, that production, involves intellectual standards *judiciously* applied, ... in other words, creativity and criticality interwoven into one seamless fabric" (emphasis in original quote, 1992, p.18). Garrison (1991) also describes critical thinking as encompassing both problem solving and creative thinking. This conclusion he derives from Perkins (cited in Garrison, 1991) who suggests that "if you talk about really good critical thinking, you are talking about thinking that is insightful....It cuts to the heart of the matter - and that, rather plainly, is creative thinking" (p.15).

Drawing on Dewey's (1933) reflective-thinking cycle, Garrison (1991) introduces a critical thinking model which is also characterized by five distinct phases. Following Dewey, he argues that emphasis can be placed on each of the various phases of the cycle, which are problem identification, problem definition, exploration, applicability, and integration. While going through the cycle, the world of ideas and intuition is predominant in some phases whereas the world of shared knowledge and logical reasoning and problem solving are more important for others. Garrison also points to the strong relationship between expertise and intuition, arguing that creative thinking necessitates a deep understanding of the situation. This point is important when considering the role of instruction or the role of the teacher in higher education. It suggests that critical thinking (or here creative thinking) needs to be preceded by a phase of instruction in which students are made sufficiently familiar with the subject matter.

Mezirow's (1981, 1991a, 1991b) theory of perspective transformation holds as its key concept, critical reflection. Critical reflection on long-held beliefs or taken-for-granted assumptions in the psychological, sociocultural or epistemic domain might either lead to a confirmation or rejection of a person's meaning perspective. The same concept of "critical thinking" is underlying Marsick's (1991) "Action Learning in the Workplace" and Hart's (1991) notion of "Consciousness Raising in the women's Movement". It is also compatible with Candy's (1988, 1991) notion of transformation of personal constructs (Kelly,

1955) which leads people to changes in their perception of the world. Following Kelly (1955) who created the notion of "human beings as scientists", who strive to grow and thus are continuously trying to test the validity of their hypotheses or anticipatory schemes, Candy (1988) identified "critical thinking" as a cycle embracing five phases: anticipation, investment, encounter, confirmation or disconfirmation, and constructive revision.

Mezirow (1991a) calls perspective transformation "the central process of **adult development** "[emphasis added] (p.155). In Brookfield's (1987a, 1990) view, learning to think critically is one of the most significant learning experiences in **adult life**. Garrison (1991) points out that there is growing support that preadults are not ready for critical reflectivity. Research findings (Kitchener & King, 1991; King, Wood & Mines 1990) strengthen this conclusion. The 'reflective judgement model' was invented by Kitchener and King in 1981. The main contribution of their work was the distinction between ill-structured and well-structured problems. Well-structured problems can be described and solved completely and with certainty. Ill-structured problems are difficult to be described and cannot be solved with certainty (King, Wood, & Mines, 1990). This understanding is similar to Paul's (1992) notion of mono - and multilogical problems. Multilogical problems are characterized by allowing more than one rationally legitimate answer, and the justifications for answers are usually divergent. Most real-world problems are ill-structured as full information is often not available and it is difficult to define one clear solution. The model by

Kitchener et al. "describes changes in assumptions about sources and certainty of knowledge and how decisions are justified in lights of those assumptions" (Kitchener & King, 1991, p.160). Following John Dewey (1933), who argued that reflective thinking is the careful collection and evaluation of evidence leading to a conclusion, they identified seven sequential stages of intellectual development, each associated with a different strategy for solving ill-structured problems. These findings are compatible with the nine developmental positions identified by Perry (1970) in a study of Harvard undergraduates in the 1950s and 1960s. Although Perry's study has only limited reliability, Harvard students are not really representative for the adult population, and the study can be considered gender-biased (eighty-two men and two women), the findings are worth mentioning as they show the students moving from simplistic to highly complex ways of thinking. Although Kitchener and King (1991) suggest at one point that the ability for more advanced reflective judgement is age-related, this conclusion is relativized in a different study with graduate students (King, Wood, & Mines, 1990) where educational level seems to be the decisive factor. Although graduate students are also older than undergraduates, the increased exposure of graduate students to thinking tasks similar to those required for the testing should not be underestimated.

The findings of these studies suggest that critical thinking can be learned. However, McPeck (1981) denies the idea that there is something like an universal skill of critical thinking and opposes the idea to teach critical

thinking as a distinct subject:

To the extent that critical thinking is not about a specific subject X, it is both conceptually and practically empty. The statement "I teach critical thinking", simpliciter, is vacuous because *there is no generalized skill properly called critical thinking* [emphasis added] (McPeck, 1981, p. 4-5).

Sternberg (1986) is not against the teaching of generic thinking skills but also questions the transferability of critical thinking skills from one context to the other. He considers it as essential that critical thinking skills are taught in a way that *maximizes* the probability of their transfer to real-life situations. This is in tune with Meyers (1986) who states that logical reasoning and problem solving should not be taught in and of themselves separately from specific subject matter, since they "take different forms in the context of different academic disciplines" (Meyers, 1986, p.5). Glaser (1984) advocates for teaching critical thinking subject matter specifically and provides a rationale for education by saying: "As individuals acquire knowledge, they also should be empowered to think and reason" (p.103). However, evidence that he thinks that critical thinking skills are generalizable is provided by the Critical Thinking Appraisal (1980) he developed together with Edward M. Watson in the 1940s. Following a definition as suggested by Dressel and Mayhew (1954) they defined critical thinking as

- The ability to define a problem.

- The ability to select pertinent information for the solution of a problem.
- The ability to recognize stated and unstated assumptions.
- The ability to formulate and select relevant and promising hypotheses.
- The ability to draw valid conclusions and judge the validity of inferences (Watson & Glaser, 1980, p.1).

The five subtests of the Critical Thinking Appraisal are designed to capture the respective aspects of critical thinking as defined by Dressel and Mayhew (1954).

McPeck's (1981) notion that critical thinking skills are not generalizable is most thoroughly opposed by Ennis (1989) who states that people can have general critical thinking dispositions and abilities that can be applied to particular cases. Perkins and Salomon (1989) also argue for a rather synthesized view which requires both generality and context-specificity in instruction. Paul (1992) pointed out that "the real and pressing question is not whether or not content is necessary to thought (it is) but whether "content" restricts us to thinking *within* as against *across* and *between* and *beyond* categories" [emphasis in original] (p. 518). In discussing the validity of critical thinking tests, Norris (1989) illustrates the difficulties in deciding whether or not the outcome, the test results, does reflect the process, that is "critical thinking". He introduces the concepts of epistemological and psychological generalizability

of thinking skills. Whereas the former idea assumes that "there are principles and standards of critical thinking that are applicable to many subjects" (p.21), the latter notion involves that "people actually apply critical thinking learned in one subject to thinking in another" (p.22). Psychological generalizability entails epistemological generalizability, as there needs to be something that can be transferred. In testing for critical thinking, a distinction must be drawn between critical thinking that transcends particular subjects and mere, subject-specific knowledge that is applied to solve the problem. However, whereas this distinction can be made in theory, it is much harder to maintain in practice, that is in testing critical thinking (Norris, 1989).

Smith (1977) conducted a study which investigated the relationship between specific classroom behaviours and critical thinking. As active involvement of the students in the learning process was considered as crucial, the study focused on specific teacher behaviours, such as encouraging students and asking questions, and on specific student behaviours, such as student participation and peer-to-peer interaction, and their impact on the development of critical thinking in students. In order to test critical thinking the Watson and Glaser Critical Thinking Appraisal (1980) and the Chickering Critical Thinking Behaviours test (McDowell & Chickering, 1967) was applied. Whereas the three subtests selected from the Watson and Glaser test measured the students' ability to make inferences, interpretations, and

evaluations-of-arguments, the Chickering Scale measured the time students spent in each of six activities while studying for the particular course in question. These activities are based on Bloom's (1959) Taxonomy of Educational Objectives in the cognitive domain, that is, memorizing, interpreting, applying, analysing, synthesizing, and evaluating (Smith, 1977). The results indicated that student participation, faculty encouragement such as praise and using students' ideas, and peer-to-peer interaction, were most closely related to the ability to think critically. These three process variables were also closely related to the two critical thinking behaviours analysis and synthesis. Higher level questions asked by the teacher were related very closely with evaluative behaviours. The suggestion was made that the consideration of individual faculty members' goals as well as variations among disciplines should be included as variables in further studies. It might be worthwhile mentioning in this context that Paul (1992), in an article entitled "Bloom's taxonomy and critical thinking instruction: Recall is not knowledge", criticized Bloom for misconceptualizing knowledge as mere rote learning without doing justice to the high degree of critical thinking that is required to arrive at genuine knowledge. His argument is that knowledge cannot be given to a person but needs to be constructed. It is his understanding that "achieving knowledge always presupposes at least minimal comprehension, application, analysis, synthesis, and evaluation" (Paul, 1992, p.525).

A study conducted by Chickering (1972) on the academic experiences of

undergraduates suggested that approaches to curriculum, teacher behaviour, and varied ways of evaluation, have a direct influence on the students' motivation, work patterns, and feelings about the course. It was concluded that these differences "will lead to very different outcomes for intellectual competence, intellectual interests, and other dimensions of student development" (Chickering, 1972, p.143). It was suggested that programs should be evaluated in terms of the compatibility of their objectives and the opportunities they provide for learning experiences in order to reach these objectives. If the development of critical thinking is the goal, but the only mental activity the students are engaged in is memorizing, it was argued, a strong discrepancy between objectives and learning outcome is the reality.

Evidence that a program does not foster the behaviours and experiences pertinent to desired objectives is usually sufficient reason to assume that such development is not taking place; or if it is, that forces outside the program are at work (Chickering, 1972, p.143).

Many authors emphasize the importance of a caring, supportive but challenging atmosphere as indispensable for the development of critical thinking skills in students (cf. Brookfield, 1986; 1987a; Meyers, 1986; Mezirow, 1991a, 1991b). Teachers' behaviour or leadership style, therefore, can be considered as an essential variable in the investigation of critical reflective student thinking. Meyers (1986) mentions some concrete behaviours of teachers that are conducive for the facilitation of critical thinking. These are, validating students'

contributions to class discussion, writing encouraging comments on their written assignments, making encouraging nods, showing patience as students struggle to express themselves, drawing parallels between students' own experiences and the subject being taught, and admitting their own doubts, gaps in knowledge, or personal biases (Meyers, 1986). At the same time he emphasizes that students will not learn to think critically simply by observing the teacher admitting personal biases, opinions, and interests.

While allowing more personal and subjective elements to inform their teaching, teachers must retain a healthy dose of objectivity. This advice is not contradictory. As professional educators, teachers have an obligation to represent the theoretical foundations and assumptions of their disciplines clearly and in a relatively unbiased and objective manner (Meyers, 1986, p.93).

In addition he views an interactive classroom as important, where open dialogue between students and teachers is the predominant mode, which is characterized by skilful questioning on the part of the teacher and confident questioning on the part of the students. This is in tune with Brookfield's (1987a) notion of "learning conversations" (p.238), Garrison's (1991) emphasis on "transactional dialogue between teacher and students" (p.300), Paul's (1992) concept of "socratic questioning" (p. 360), Glaser's (1984) argument that "interactive inquiry methods are powerful tools for teaching thinking" (p. 107), and Siegel's (1988) call for educators to develop a "critical manner" (p.45).

With regard to path-goal theory, the conceptual framework chosen for the present study, this means that both supportive, participatory, directive and challenging leadership behaviour are important.

"Critical thinking" still seems to be a "critical" issue among education scholars. Further research on critical thinking is clearly necessary. Whether or not students' critical thinking skills differ according to the exposure they have had to particular teaching behaviours is still a question of interest today and the primary concern of the present study.

Self-Directed Learning

There is presumably no other topic within adult education that has received as much attention and found as many advocates as the concept of self-directed learning. However, since the pioneering studies on self-directed learning (Houle, 1963; Tough, 1979), and Knowles' (1975, 1980) introduction of "andragogy", which was to become the prevailing and guiding philosophy of adult education, the concept also has found its critics.

Jarvis (1992) describes the current state succinctly in his statement: "Self-directed learning is one of those amorphous terms that occurs in adult education literature but that lacks precise definition" (p.130). Over the last decade an increasing interest has evolved regarding the question as to how self-directed learning is to be interpreted, and whether the predominant understanding is still congruent or at least compatible with those ideals of adult education Lindeman and his successors had traditionally subscribed to (cf.

Bagnall, 1987; Brockett & Hiemstra, 1985; Brookfield, 1984, 1985a, 1985b, 1986, 1987b; Candy, 1988, 1991; Chené, 1983; Harris, 1989; Long, 1990; Mezirow, 1985a, 1985b; Taylor, 1987). Knowles (1984) understood self-direction as a characteristic of adults; a trait that evolves on the basis of a natural maturation process. Self-directed learning he defined as

a process in which individuals take the initiative without the help of others in diagnosing their learning needs, formulating goals, identifying human and material resources, and evaluating learning outcomes (Knowles, 1975, p.18).

It is this definition of SDL which is underlying Guglielmino's Self-Directed Learning Readiness Scale (1977), a widely used instrument to assess the degree to which adults are self-directed in their learning, and it is this concept that many adult education programs, which follow a self-directed approach, are proceeding from. This construct has been challenged most strongly by Stephen Brookfield (1985a, 1985b, 1986) who emphasized the importance of critical reflective thinking on the personal values, beliefs, and assumptions which make up one's mental framework as the key processes in self-directed learning. Although Knowles' definition did not explicitly exclude these processes, they have been ignored in the widespread interpretations of Knowles' definition that followed. A consequence of this misconception was that educators, by uncritically accepting the facilitator role as glorified in the literature, aimed only at meeting the expressed or felt needs of the learners. However, as people

"operate within their self-imposed limits" (Brookfield, 1985a, p.10), they might not be able to distinguish between their real needs and merely felt needs. If educators become mere technicians of educational design, in order to meet learners' expressed needs, adults' real learning and development becomes undermined or at least restricted. The real task of an adult educator Brookfield (1985a) described as follows:

One task of the adult teacher, therefore, is to encourage adult students to view knowledge and truth as contextual, to see value frameworks as cultural constructs, and to appreciate that they can act on their world individually or collectively and that they can transform it (p.10).

The similarities between Brookfield's view of SDL and Mezirow's transformation theory are apparent. Indeed, Mezirow (1985a) commented on SDL:

There is probably no such thing as a self-directed learner, except in the sense that there is a learner who can participate fully and freely in the dialogue through which we test our interests and perspectives against those of others and accordingly modify them and our learning goals.it seems gratuitous to fix learning objectives at the outset as criteria against which learning gains are to be assessed. ...Adults are often not aware of their best interests. (p.27).

Chené (1983) also criticized a concept of SDL which conceives itself merely as being in command of self-instructional techniques. Real autonomous learning, she argued, can occur only if learners have full knowledge about all

alternative learning activities. "It is only when the limits of possible choices are drawn and the ability to judge developed that adult learners can exercise autonomy over their learning" (Chené, 1983, p.46). Collins (1988) questioned whether self-directed learning as currently practised really leads to empowerment and emancipation. Drawing upon Habermas' (1981) work, he equates modern adult education practice, including formal needs assessment instruments, standardized competency-based education formats, and learning contracts, with the steering mechanisms of a technical rationality. Instead, communicative rationality should be practised "where genuine participatory democracy is prevalent in shaping our learning experiences" (Collins, 1988, p.64). Drawing also on Foucault's concept of the interrelatedness of power and knowledge, he criticized the current practice of SDL as serving the interests of "management concerned as much with problems of control and centralization as with educational development" (Collins, 1988, p.65). More recently Brookfield (1993) questions whether control in the conduct of learning can be exerted when the prevailing culture or society within which this learning is embedded is itself highly controlling. He points to the paradox inherent in the idea of "controlled self-direction", which makes the so-called self-directed learner a willing partner in hegemony. An alertness to the possibility of hegemony should be at the centre of every fully developed self-directed learning project. Such a project exists when "we examine our definitions of what we think it is important for us to learn for the extent to which these end up

serving repressive interests" (Brookfield, 1993, p.39). Following the argument of Chené (1983) he argues that being in control means making informed choices, and making informed choices can only be made on the basis of as full knowledge as possible. However, access to resources is limited and further render difficult the exercise of a self-directed learning project. The essence of Brookfield's latest analysis of SDL is that it could be interpreted as a challenging political concept. Self-direction in learning exercised on a superficial level, embedded in a framework of narcissistic and nonproblematic self-actualization, is meaningless and does further serve as an argument for budget cuts in the adult education setting. Self-directed learning understood as the process of becoming aware of how our desires and needs are culturally constructed, becoming aware how our thinking is predetermined by the framework that surrounds us, and further starting to question the taken-for-granted limitations of a self-directed learning project, these are the basic steps Brookfield identifies for gaining genuine control over one's action, and of rebuilding a critical practice of adult education. He concludes his essay with the optimistic and empathetic statement: "Self-directed learning could become one of the most politically charged Trojan Horses the field of adult education has ever known" (p.42).

The arguments of the different scholars are based on different understandings of SDL. Bagnall (1987) pointed out the dichotomous character of self-direction as referring to self-determination ("being self-directing to the

extent that one is in control of one's destiny", Bagnall, 1987, p.90) on the one side and self-management ("being self-directing within one's field of constraints", Bagnall, 1987, p.90) on the other. He referred to the risk in adult education practice of maximizing self-management without simultaneously reducing learners' dependency. In one of the most comprehensive works on SDL published within the last decade, Candy (1991) also made the attempt to clarify the ambiguous issue of self-direction by distinguishing four independent phenomena. He identified personal autonomy, learner control, self-management, and autodidaxy. Following Brookfield he distinguished sharply between self-direction as a goal or outcome and as a process in education. Although it is certainly true that the ambiguous choice of words used to describe SDL has led to a lot of unnecessary confusion in the area, it is questionable whether Candy's endeavours will contribute to change this status quo, since the length of his work is not exactly conducive for becoming a best-seller for practitioners. Candy's contribution lies primarily in the emphasis he places on the situationality of self-direction. He denies the idea of self-direction as a general personal trait, and he argues that people can be self-directed in one of the four domains and still be dependent in the remaining three. The distinction he draws between learner control and autodidaxy is also important. The argument goes that only in autodidaxy the learner has full control over the learning process. The same point is emphasized by Jarvis (1992) who points out the paradox inherent in self-directed learning when learners are required to

follow a self-directed learning approach in a course. He poses the provocative question:

Is it self-directed, at the level of aims and objectives, content, or method, when a teacher has determined in an authoritarian manner that one or more of these aspects will be self-directed or negotiated? We might claim that while the process appears to be self-directed this is not really the case (p.138).

He also questions the genuine autonomy of those learners who follow a self-directed approach in a course because they feel great respect for their teacher. It is his notion that learners might do what the teacher thinks is best for them because of this sense of respect. Speaking of Knowles' concept of self-directing learning he suggests that Knowles was less concerned with self-direction itself but with an informal approach to learning which reflected best his humanistic perspective as an educator. When a teacher delegates control, self-directed learning is nothing more than a teaching technique. However, Jarvis' latest book (1992) deliberately aims at uncovering the "Paradoxes of Learning", and might only arouse further confusion in the context of this study. Apart from this his philosophical considerations and discoveries are interesting to read and undoubtedly worthwhile reflecting on.

Candy's work is soundly embedded in George Kelly's (1955) Personal Construct Theory. Writing from a constructivist point of view, he criticizes the predominant use of quantitative research methods in studies on SDL, and urges

the educational researcher to study SDL from the assumptions underlying the interpretive paradigm, as the way the student construes the learning experience is the only decisive factor in determining whether or not learning is self-directed (Candy, 1988, 1991).

Considering this vast variety of interpretations it is not surprising that suggestions as to how to best facilitate SDL are also quite diverse. As the concluding statement of a study investigating the teaching strategies used by educators in order to facilitate SDL conducted by Sisco (1989), he writes that "such techniques as learning contracts, self-analysis inventories, role modelling, critical questioning, collaborative learning, and individual advising sessions are a few examples of the many strategies in use" (Sisco, 1989, p.281). Caffarella (1983) and Caffarella and Caffarella (1986) also stress the impact the use of learning contracts can have on the self-directedness of adult learners. Grow (1991), who also discusses the concept of SDL, introduces a "Staged Self-Directed Learning Model" in order to make suggestions as to how to best facilitate SDL. This model is based on Hersey and Blanchard's (1982) Situational Leadership Model which suggests that leadership behaviour, in order to be effective, needs to take into account the followers' readiness (maturity) and is therefore situational. Readiness is understood as a combination of motivation and ability and might be task-specific. Leadership behaviour is effective if it matches the follower's readiness. A combination of directiveness, challenge, and support is necessary to accomplish two things: that the task will

be done successfully, and that the follower grows towards further independence. Grow's Staged Self-Directed Learning Model is to be understood along the same lines. Self-direction in learning is seen to be situational. However, Grow (1991) challenges the widely accepted view that self-directedness in learning is only a situational attribute (Pratt, 1988), and claims that it is also a personal trait. His rationale is that, although SDL is ultimately situational it is possible for people to "learn how to learn" (p.147) which could then be transferred to any other learning situations. Joblin (1988) also emphasizes that whether the educator needs to act in a more directive or a more supportive manner is dependent on the nature of the content of the encounter and the individual capacities of the learner. The importance of dialogical learning situations that are characterized by challenge and support are also emphasized by Brookfield (1985a, 1986, 1987a, 1991), Candy (1991), Mezirow (1985a, 1991a, 1991b) and others. Brockett (1985), who highlights the value of interactive approaches, cautions the adult educator not to falsely consider self-directed learning as the optimal and desirable learning mode for all students. He states: "Perhaps it is more appropriate to think of self-directed learning as an ideal mode of learning for certain individuals and for certain situations" (Brockett, 1985, p.33). Talking about the role of the instructor, he also stresses the significance of "empathy, respect, and genuineness" (Brockett, 1985, p.35). Kasworm (1992) defines self-directed learning "as an interactive set of knowledge, attitudes, values and behaviours of the individual

in pursuit of purposeful self-learning experiences within any environmental context" (p.224). Robertson (1987) stresses that the facilitation of self-directed learning also implies learning on the part of the educator. Educators need to become aware of how they view self-directed learning, and how much choice and decision on the part of the learners they will accept, and why. She points out that SDL "may involve the transcendence of the boundaries set by the facilitator, and the development of new boundaries set by the learner" (Robertson, 1987, p. 87). This means that educators need to show the willingness to give up power and control by entering into genuine communication and interaction with course participants in order to stimulate learners' growth; a point recently also emphasized by Cranton (1993, in progress).

Although the literature on self-directed learning in adult education is rich, very little has been written about the process of becoming self-directed (Cranton, 1992). Whereas it is acknowledged that not all adult learners are equally self-directed in their learning and different teaching approaches or strategies may be appropriate for different students, there have been only two attempts made to date to describe the process of becoming a self-directed learner in more detail. Taylor (1987), based on a qualitative study with eight adult students participating in an adult education graduate course, suggests four phases and four transition points. The four transition phases are described as disconfirmation, naming the problem, reflection, and sharing the discovery.

The phases are disorientation, exploration, reorientation, and equilibrium. This model is theoretically embedded in other learning cycles such as Kolb (1984) and Mezirow (1978). In fact Taylor, by drawing on Parke's (1971) work who believed that "the learning process begins with the collapse of the learner's frame of reference or 'assumptive world'" (Taylor, p.59) describes the process of becoming self-directed as a transformative learning experience. This view is also shared by Cranton (1992) who writes:

The experience of working toward self-directed learning requires, for most adults, a radical change in beliefs and values. Long-held assumptions about the nature of education must be examined, questioned, and revised. In this sense, the process is an example of Mezirow's transformative learning and usually is a complex and painful process (p.111).

Acknowledging that the Taylor model provides a useful framework in understanding the process learners go through when becoming more self-directed in learning, she also criticizes the model for not adequately accounting for learner differences. Elaborating on Taylor's model, Cranton (1992) suggests some further possible stages in the process and also incorporates into this new model two possible learner reactions, either rejection or acceptance, to each of the respective stages.

More recently research on self-directed learning has followed Candy's (1991) recommendations to approach research on SDL from the students'

perspective, that is to conduct it on the basis of the qualitative research paradigm which seeks to understand lived experience. However, a consensus on methodology among many researchers by no means has provided further clarity in terms of the construct of SDL that should underlie the investigation of self-directed learning. Although scholars such as Chené, Brookfield and Mezirow made a strong point for a more critical view of self-directed learning that involves the critical examination of assumptions and beliefs underlying one's actions, research on SDL has used the notion of learner control as originally identified by Knowles as the guiding construct from which to proceed. A recent study entitled Self-direction in Adult Undergraduates (Blowers, 1993) also investigated students' perceptions of learner control while the students were proceeding through the program. The study is located into Long's (1991) distinction between psychological control and pedagogical control in a learning experience, whereas the former pertains to the individual's active control over the learning experience and the latter to the control exerted by the teacher. According to this view, self-directed learning, however, can be pedagogical, this is when psychological and pedagogical control interact, and psychological control is equal to or greater than pedagogical control. The study showed that the students perceived high levels of learner control while going through the program. Learner control was defined as making choices to participate in pre-defined processes of learning. "The actions of these adults met their expectations and complied with external institutional and cultural expectations"

(Blowers, 1993, p. 17).

Herbeson (1990), in a study which was designed to investigate the relationship between psychological type and self-directed learning, found that psychological type does influence the ability of students to be self-directed. More specifically the study indicated that the intuitive function is a significant predictor of self-directed learning. While this study strengthens the view that people differ in their ability to be self-directed in learning, it allows to make only limited inferences in terms of teaching style. However, it seems reasonable to conclude that different types will benefit from a different teaching strategy.

Researching self-directed learning necessitates being explicit about the conceptual understanding of self-directed learning underlying the study. The present study conceives of self-directed learning as a process in which learners perceive themselves as being in control of the learning project, and do critically reflect on and become conscious of the contextuality of knowledge and value frameworks. This concept is distinguished from a widespread understanding of self-directed learning solely in terms of being in command of self-instructional techniques. Self-directed learning reaches its ultimate fulfilment when

the techniques of self-directed learning are allied with the adult's quest for critical reflection and the creation of personal meaning after due consideration of a full range of alternative value frameworks and action possibilities (Brookfield, 1985a, p.15).

Foundations of the study

Is there a theory of adult education?

A problem recognized by many adult education scholars is that adult education suffers from one severe shortcoming - that is the notable lack of theory (Cross, 1990a). Whereas some people describe the field as atheoretical

(Boshier, 1980; cited in Long, 1991; Mezirow, 1981), others describe it as lacking coherence (Carlson, 1977, cited in Long, 1991), regressing (Rockhill, 1976, cited in Long, 1991), or slow moving, and lacking theory building and accumulative effort (Plecas and Sork, 1986, cited in Long, 1991). Long (1983) offers a more optimistic view by commenting "adult education research is slowly coming of age ... a body of knowledge informed by research is emerging" (p.35).

Cross (1990a) and Long (1991) share the criticism that the great number of articles published in journals would show considerably more research emphasis, but expand the knowledge of adult education without really deepening it. Cross discusses a number of reasons for the lack of a coherent theory in adult education, such as

the enormous diversity of adult learning situations, the practitioner domination of the field, the market orientation of unsubsidized education, and, frankly, the lack of desire or perceived need for theory (Cross, 1990a, p.221).

Whereas it is Cross' (1990a) notion that "it is unlikely that there will ever be a single theory of adult learning" (p.111) due to the multidisciplinary nature of the field (psychology, sociology, physiology, gerontology ...), she calls for the synthesis of all current knowledge in the area into useful theories of how adults learn or should be taught. Her own contribution to theory development is a theory of adult motivation for learning, called Chain-of-Response Model (COR), and a theory of teaching adults, called Characteristics of Adults as Learners Model (CAL) (Cross, 1990a). The CAL Model was developed on the basis of the assumption, that although there are many good teachers who intuitively know how to best facilitate learning in adults, true progress in providing improved instruction for adults learners can only evolve when the diverse variables influencing effective practice can be identified. The CAL model distinguishes between personal characteristics and situational characteristics of the adult learning situation and integrates research on aging, life phases and life stages. The importance of the teacher to be a challenger in order to help the learner to move to increasingly advanced stages of personal development is emphasized. The role of the adult educator is summarized by Cross (1990a) as follows:

the same educator operating across all three continua might create a warm and accepting atmosphere on the physiological dimension; a cooperative, adventuresome environment on the life-phase continuum; and a challenging environment for stimulating developmental growth on

the developmental-stage continuum (p.240).

This description of educator responsibilities stimulates thought as to what effective teachers might do to create a warm, accepting and at the same time also adventuresome environment; however, it does not provide any clear suggestions. Considering the number of variables that need to be taken into account this is certainly very difficult to do. Although Cross made a great contribution to the adult education knowledge base, there still remains the question whether "challenge" and "support" are the only two variables that can be identified to describe effective educator behaviour.

Research on Teaching Effectiveness

Whereas the beginning research on teaching effectiveness focused on the identification of characteristics that distinguish excellent from ineffective teachers (Knowles, 1984), Gage (1967) pointed out that one should rather look for process variables; that is "teacher activities, rather than teacher characteristics such as amount of education, experience, or verbal ability" (Gage, 1972, cited in Knowles, 1984, p.104). When Gage (1972) did a survey on studies that looked for these process variables he found that effective teachers "tend to behave approvingly, acceptantly, and supportively ... they tend to like and trust rather than fear other people of all kinds" (Gage, 1972, cited in Knowles, 1984, p.104). A further study reviewed by Gage was conducted by Flanders and Simon (1969) and emphasized the importance of teachers to make use of ideas and opinions previously expressed by students (cited in

Knowles, 1984). Another dimension of teacher behaviour was described as the "teacher's intellectual grasp or cognitive organization of what he is trying to teach" (Gage, 1972, cited in Knowles, 1984, p.105). The fourth dimension identified by Gage after reviewing a study by Rosenshine (1970) is teachers' enthusiasm. These four broad variables that Gage summarized as warmth, indirectness, cognitive organization and enthusiasm (cited in Knowles, 1984, p.105) are not really that different from the four leadership styles in path-goal theory (House, 1971) which will be explained in the next section of this chapter. Warmth can be equated with supportive, indirectness with participative, and enthusiasm with achievement-oriented leadership style. Cognitive organization does only vaguely fit but is related to the teacher's task orientation, that is identified as directiveness in path-goal theory.

An interesting point was made by Pratt (1988). In an attempt to clarify what constitutes teacher effectiveness, Pratt pointed out that research on teacher effectiveness has been approached from three different perspectives. Early research viewed teacher effectiveness as a function of acquisition of skills and procedures; later research focused on the accommodation of contextual variations, and more recent studies consider critical reflection on knowledge and values, "a form of critical awareness of the means and ends of one's teaching and the link between teaching and personal and cultural values" (p.246). Pratt emphasizes that a more appropriate approach to describing teacher effectiveness would be to acknowledge the interrelatedness of all the three

perspectives. Approaching teacher effectiveness merely from one of these perspectives itself is considered inconclusive.

Leadership and Adult Education

When Knowles (1983) conducted a study on the characteristics of creative leadership, which he defined as "that form of leadership which releases the creative energy of the people being led" (Knowles 1983, cited in Knowles 1984, p.196), he came up with eight different assumptions, each supported by research findings, as to what the behavioural characteristics of creative leaders were. He concluded that creative leaders have faith in people, offer them challenging opportunities, and delegate responsibility. Creative leaders perceive the locus of control to reside within themselves. Creative leaders involve others in decision making, they recognize the relationship between positive self-concept and superior performance and make use of the power of the Pygmalion effect. They value individuality. They are skilful in selecting the most effective strategies for bringing about change. They emphasize internal motivators over external motivators, and they encourage people to be self-directing (Knowles, 1983, cited in Knowles 1984, pp.193 to 200).

Chickering (1969) identified certain conditions in higher education that had an impact on fostering of development in young adults. It was his notion that development occurred in seven major areas, which he called "vectors of development". These were "achieving competence, managing emotions,

becoming autonomous, establishing identity, freeing interpersonal relationships, clarifying purposes, and developing integrity" (Chickering, 1969, p.19). With regard to teaching practices he concluded that the development of competence, autonomy, identity, and the freeing of interpersonal relationships were fostered

as the content and the orientation of the teacher are such that he does not stand as the final authority, as the content is used to throw light in basic existential questions of value and belief, or complex issues and problems of more immediate concern, as classes are group discussions with ample exchange among students as well as between students and teacher occurs, as discussion of relevant personal experiences, feelings, and reactions is a legitimate supplement to objective analyses and interpretation (Chickering, 1969, p.219).

Discussing the importance of teaching styles in adult education, Jarvis (1992) draws on the early research on leadership styles by Lippit and White (1958) which was conducted in the United States under the guidance of Kurt Lewin in the thirties. Lewin, a German Jewish immigrant, was particularly interested in the influence a leader can exert on a group of people by following a certain leadership style. The research sample selected for the study were youth leaders in ten youth clubs in the United States. The significant finding of this project was that group behaviour seemed to be consistent with the three leadership styles, authoritarian, democratic, and laissez-faire, which built the framework for the study. Authoritarian leaders created group dependence on

the leader and left the group dysfunctional when the leader was absent.

Democratic leaders created harmonious working relationships which were maintained when the leader was not present. Leaders who followed a laissez-faire style of leadership created dysfunctional groups regardless of their presence. Jahnke (1982) and others have long since pointed out that the drawback of this early research was that there are probably many more "leadership styles" than the three the researchers had decided on a priori. Jarvis (1992) points out that authoritarian leaders are likely to foster non-reflective learning and laissez-faire leaders nonlearning, which leaves the democratic leadership style as the ideal where students can reflect, accept or reject. Jarvis concludes:

In any case, the style of teaching is a very important element in any teaching and learning interaction. It may actually determine the type of learning that takes place, since the style establishes the atmosphere within which potential learning situations are experienced (p.242).

An Interactive Model of Student-Teacher Interaction and Learning Outcome derived from Leadership Theory

The model suggested in this study draws upon earlier works including Kurt Lewin's (1951) Field-Theory, House's (1971) Path-Goal Theory of Leadership, Kjell Rubenson's (1977) Expectancy-Valence Paradigm, and Horst Nickel's (1978) Transactional Model of Teacher-Student Interaction (Ger.: transaktionales Model der Schüler-Lehrer Beziehung). Each of these theories

will be briefly described below and their relevance for the present study will be explained.

Field-Theory

Lewin's (1951) basic notion was that all individuals live in a life-space where various forces are operating. This life-space is constituted by features of the environment to which the individual is reacting, like material objects and people he or she meets, and also by the individual's private thoughts, intentions or goals. The actual behaviour is the result of the interaction of all these forces. The main reason that learning occurs is seen to lie in the motivation in the individual. Motivation is affected by "valence", which Lewin called the relative attractiveness of one goal over another, and the anticipated success in attaining this goal. The way the individual perceives the environment and identifies goals, together with the self-construed prospects for success are suggested as major determining variables for behaviour. These insights allow one to make inferences regarding motivation of people. If valence and expectancy of success is high, motivation is high, which is the most fertile foundation for learning.

Path-Goal Theory

Path-Goal theory was developed by House (1971) to explain how leaders can actively influence subordinates' satisfaction and performance by adjusting their leadership behaviour to the particular situation. The situation is described by various moderating variables including certain task and subordinate

characteristics. Path-goal theory concentrates on two intervening variables called "valence" and "expectancy" borrowed from a motivation theory called "expectancy theory" (Vroom, 1964). The influence of Lewin's early work on leadership, of course, is apparent. Expectancy theory explains people's work motivation as a function of a "rational choice process in which a person decides how much effort to devote to the job at a given point of time" (Yukl, 1989, p.99). Expectancy is the perceived probability of an outcome and valence is the desirability of the outcome. These two variables then are congruent with Kurt Lewin's determinators for motivation as described above.

Path-goal theory suggests that to keep expectancy and valence high the leader needs to adjust his or her leadership style to the variables which determine the situation. Four different leadership styles are distinguished. Supportive leadership is defined as "giving consideration to the needs of subordinates, displaying concern for their welfare, and creating a friendly atmosphere" (Yukl, 1989, p. 100). Directive leadership is interpreted as "letting subordinates know what they are expected to do, giving guidance, asking subordinates to follow rules and procedures, scheduling and coordinating the work" (Yukl, 1989, p.100). Participatory leadership is specified as "consulting with subordinates and taking their opinions and suggestions into account" (Yukl, 1989, p.100). Finally, achievement-oriented leadership is understood as "setting challenging goals, seeking performance improvements, emphasizing excellence in performance, and showing confidence that subordinates will attain

high standards" (Yukl, 1989, p.100).

Path-goal theory suggests various hypotheses as to which leadership style applied in which situation will keep motivation high and thereby will lead to greater effort and performance in subordinates. However, research conducted to test path-goal theory has only partially verified these hypotheses (Evans, 1986). The hypotheses supported by recent research findings are that "directive leader behaviour increases subordinate satisfaction for unstructured tasks but not for structured tasks" (Yukl, 1989, p.102), that "supportive behaviour increases role clarity, and performance for unstructured tasks but not structured tasks" (Yukl, 1989, p.102) and that "supportive leadership has a positive effect on satisfaction, and this effect is only weakly moderated by task structure" (Yukl, 1989, p.103). Very little research has been conducted to test the suggested hypotheses regarding participative and achievement-oriented leadership. However, the results obtained supported the hypothesis that participatory leadership will lead to satisfaction when the task is unstructured and subordinates have a need for autonomy (Yukl, 1989).

In chapter one the danger implied in the behavioural concept of motivation underlying path-goal theory was elaborated on.

Path-goal theory also has been criticized for some conceptual deficiencies. Its reliance on expectancy-theory alone to explain human motivational processes was criticized by Schriesheim and Kerr (1977, cited in Yukl, 1989). Expectancy-theory itself would have many weaknesses and its

substitution by an alternative decision model would reduce the limitations of path-goal theory. Another criticism is that the four suggested leadership styles are too abstract and should be further specified (Yukl & Clemence, 1984, cited in Yukl, 1989).

Osborn (1974, cited in Yukl, 1989) pointed out that the manner in which the different situational variables interact has not been investigated and therefore it is not clear how different aspects of the situation moderate the situation.

Despite these limitations of path-goal theory, the strong contribution it has made to leadership theory in general, which is to acknowledge that the same leadership style is not appropriate for all situations, and that situations are comprised of various task and subordinate characteristics should not be underestimated. It is in this sense that path-goal theory seems to provide some help in explaining learning outcomes in the teacher-student interaction.

However, if one acknowledges path-goal theory for taking into account follower characteristics one needs at the same time question it for ignoring leader characteristics. Leader characteristics are not included as situational variables in path-goal theory. This might be one of its most severe weaknesses. Instead the leader is conceived of as being in a "black box", more or less effortlessly selecting the most appropriate behaviour from his or her behaviour repertoire in order to adjust to the situation at stake. However, this conception neglects the personal domain in the individual leader. If the

goal is to utilize the theory to better understand and explain the interaction between teacher and student and the resulting learning outcomes, both the personal characteristics of the teacher and the student need to be included in the definition of the situation.

Expectancy-Valence Paradigm

In an attempt to explain why some adults are more motivated to participate in organized education than others, the Swedish educator Rubenson (1977) investigated the various competing forces at work which either motivate or discourage people. Following Vroom's (1964) work which tried to explain the motivation of people for work, Rubenson applied the same concept to educational activities, arguing that education, like work, is an achievement-oriented activity and that those people who would like to "go ahead" will put some effort into personal achievement in school (Cross, 1990a). Drawing also from Lewin's (1951) field theory and his concept of life spaces, Rubenson also explained human behaviour as the product of the interaction between the individual and the environment and his or her perceptions of this environment. Rubenson emphasizes that a person's life space is strongly influenced by previous experiences which contribute to the person's personality, knowledge and convictions which will have an impact on his or her motivation to engage in learning situations (Cross, 1990a). "Expectancy" he divides into two parts. First, it pertains to the expectation of personal success in the educational activity and second, to the expectation that being successful in the learning

activity will have positive consequences. These two components are viewed as multiplicative. If one of them assumes a value of zero the resulting outcome is zero (Cross, 1990a). "Valence" pertains to the affective component involved in the experience. It depends strongly on the anticipated consequences of the learning activity. All perceived possible consequences together determine the valence. Motivation to participate in organized education can still be low even though expectancy of success is high. At this point Rubenson stresses the role of reference groups who are highly influential in shaping people's attitudes (Cross, 1990a).

Rubenson's expectancy-valence paradigm once again emphasizes the central role motivation plays in the devotion of time and effort. Motivation is defined as the result of the individual's perception of the situation, which has a direct influence on the expectancy and valence the individual assigns to the educational activity. The insight that people do not learn if they do not feel motivated has become almost a truism over the last few decades. However, the importance individual perceptions play in the concept of learning cannot be overemphasized. The emphasis Rubenson places on past experiences which highly influence a person's life space is also of direct significance for the student-teacher interaction. This phenomenon of mutual perceptions of both the student and the teacher will be dealt with further in the next section.

A Transactional Model for Teacher-Student-Interaction

A model which serves to explain the various conditions under which

teaching behaviour takes place was suggested by Nickel (1978). His transactional model is an attempt to identify those characteristics of a situation which directly influence teaching behaviour. The main assumption the model is built on is that the way teachers and students perceive each other and the situation is decisive for their behaviour. In addition the model suggests that the teacher as well as the student is subject to his or her own sociocultural frame of reference; that is, influences outside the teaching situation. These frames of reference are shaped by the three broad variables, "past social learning experiences" (Ger. "Soziale Lernvergangenheit"), "current social relationships and experiences" (Ger. "Gegenwärtige soziale Beziehungen und Erfahrungen"), and "objectified influences" (Ger. "Objektivierte Einflüsse") (Nickel, 1978, p.65).

On the part of the teacher, the following subvariables were identified as constituting his or her frame of reference: general educational experiences at home and in school and particular experiences in Teachers College; students, colleagues, superiors, own family, friends and acquaintances; generic and academic literature, mass media, curricula, rules and regulations On the part of the student, these subvariables are family upbringing and other education, previous experiences in school, parents, other teachers, other adults, other people of the same age, literature and mass media

The teacher and the student approach and construe the learning situation from the perspective of their individual frames of reference. In addition, they react to the perceived reactions of the other. Attitudes, role-

expectations, habits, implicit personality theories seem to play a role. Jahnke (1982) describes implicit personality theories as "lay theories" (Ger. "Laientheorie") or "everyday-theories" (Germ. "Alltagstheorie") (Jahnke, 1982, p.74) about the constitution of personality, as people seem to unreflectively infer from one observable characteristic in a person to others which they think are related. These implicit educational orientations are forces which determine the teacher's behaviour, that is, his or her teaching style. This resulting behaviour is perceived by the students and has a direct influence on their behaviour which is, in addition, also shaped by attitudes, role-expectations, habits and norms. The teacher perceives the resulting behaviour of the student and reacts to it within the scope of his or her frame of reference. The latter assumption is in tune with research findings by Klein (1971) which indicated that students can directly influence the teaching behaviour of their instructor through their own behaviour. However, since students were given instructions by the researcher as to how to behave during predetermined time periods, the idea that students' behaviour is also a function of teaching behaviour was neglected. Here it is suggested that the cyclical nature of this process demonstrates that teacher and student influence one another in terms of their behaviour, and that the exhibited behaviour is the result of a complex perception and construing process which includes various variables. The same situation might be perceived completely differently by teacher and student. This notion is also implied in a model of instructional effectiveness suggested by Cranton and

Knoop (1990) who define teaching effectiveness as a product of *instructor and student characteristics*, working conditions, course characteristics, and instructional strategies. Teaching effectiveness is given when teaching leads to learning on the part of the students and to job satisfaction on the part of the instructor. The complexity of the model cannot be described in detail at this point. However, it is important to emphasize that the model acknowledges that students and instructors influence one another.

Summary

The purpose of the current study is not to show how different perceptions might lead to conflict or how perceptual distortions like "attribution theory" and "halo-effect" can lead to "labelling" and "self-fulfilling prophecies". However, the reason for including perception as a variable is grounded on the assumption that while exploring leadership or teaching styles with the intent to later suggest which teaching style is related to critical thinking and self-direction in students, one must not lose sight of the fact that the same teaching behaviour might be perceived completely differently by teacher and student. The reason for failure or success in reaching the desired outcomes might lie in the different interpretation of the teaching behaviour.

What inferences can be drawn from Nickel's transactional model in terms of the present study? If the behaviour of teachers is to be described, or if effective teaching strategies are to be suggested, this needs to be done by considering the context in which the behaviour is to take place. This means

that many situational variables need to be considered. The situational variables that are accounted for in this study on the part of the teachers are locus of control, implicit philosophy of teaching, and psychological type. On the part of the students psychological type will be considered. Nickel's model demonstrates that there are many other variables at work at the same time. However, considering some personal characteristics and some task-specific characteristics as subject matter, class size, teaching experience, and subject expertise as possible determinators for behaviour is a good starting point. Once more, which behaviour will really be effective depends on how others perceive this behaviour, and how people perceive behaviour is dependent on the situation.

Psychological Type

It was suggested above that people differ in the ways that they interpret or perceive situations; this argument can be further explained by type theory. According to their psychological disposition, people have different natural preferences as to how they "function" in or experience the world. This preference for a given "function" is of particular significance for the classroom situation.

Jung's (1971) understanding was that people differ in terms of how they interact with each other and relate to the world. Through intensive longitudinal studies with his own clients in psychotherapy he identified two basic attitudes, introversion and extroversion, and four different functions, thinking, feeling,

sensing, and intuition. Each function can be either extroverted or introverted. From this conception eight different psychological types emerged (Jung, 1971; Sharpe, 1987).

Jung called thinking and feeling rational or judgemental functions, as they assist people in decision-making. Sensing and intuition, he described as perceptual functions, because they guide people's perceptions of what is happening around them.

Each person is assumed to have one dominant function in either the rational domain or in the perceptual domain, and also an auxiliary function which is from the opposite domain than the dominant function. "Everyone must both make decisions and perceive; these functions describe our ways of doing so" (Cranton, 1992, p.33).

Each person has also an inferior function. The inferior function is from the same domain as the dominant function. According to Jung's theory, individuals have only one strong function within either domain, rational or perceptual. The reason for this he sees in the dichotomous character of the two rational and the two perceptual functions. A person is either high in thinking and low in feeling or vice versa, and either high in sensing and low in intuition or vice versa. A function is inferior in the sense that it is less developed than the other three functions. Whereas the dominant function is conscious, the inferior function is unconscious and thus people have less control over this function. Supposing a person is endowed with a dominant

thinking function, feeling will be the inferior function. Sensing or intuition can be the auxiliary.

The concept of a "type" then, is constituted by one dominant function, one or two auxiliary functions, and one inferior function (Jung, 1971). These three or four functions, as they relate to the individual, together with either introversion or extroversion interact with each other. Depending on how strong the dominant and the auxiliary function are, and on how introverted or extroverted a person is, the individual will display certain characteristics which will either fit well or less well Jung's description of the respective types.

Thinking pertains primarily to making judgements on the basis of logical reasoning. Feeling pertains primarily to making decisions on the basis of values and likes and dislikes. Sensing pertains primarily to perceiving the world through the five senses, and is therefore oriented to the present and located in "reality". Intuition pertains primarily to perception through the "sixth sense", it implies envisioning and perceiving possibilities. Whereas sensing is strongly located in the "here and now" intuition is future-oriented and is less directed towards reality but towards what "could be" (Jung, 1971). Jung (1971) writes about extroversion

extraversion is characterized by interest in the external object, responsiveness, and a ready acceptance of external happenings, a desire to influence and be influenced by events ...the capacity to endure bustle and noise of every kind...constant attention to the surrounding

world...(p.549)

The Introvert he described as

he (sic) is not forthcoming, he (sic) is as though in continual retreat before the object ...aloof from external happenings, does not join in...self-communings are a pleasure...his best work is done with his own resources, on his own initiative, and in his own way (p.551).

According to Keirsey and Bates (1984), 75% of the North American population are extroverted and 25% are introverted; 75% of the population operate primarily through their sensing function whereas only 25% make primarily use of their intuition. Thinking and feeling seem equally distributed among the population (p.25).

Research on leadership and type (Keirsey & Bates, 1984; Knoop, 1990, Knoop, 1993 [in process]) as well as teaching style and type (Cranton & Knoop, 1990; Keirsey & Bates, 1984) cannot be reviewed in depth here.

The importance of psychological type in the educational context has been increasingly recognized over the last decade. Cranton (1992) first applied the concept to adult education by discussing the implications of psychological type in terms of educator roles and educator learner relationships. Implicit in this work is an understanding that psychological type might be a predictor for the ability of critical reflectivity in people, which has strong implications for the educator role. The same point is made by Richards, et al. (1989) who, by discussing the impact of psychological type on prospective teachers, write "it is

reasonable to assume that attributes of novices' personalities may also influence their predispositions or disinclinations for reflective thinking " (p.6).

Psychological type also has been related to learning style (Cranton & Knoop; 1990). Bernice McCarthy's 4-Mat system (1991) which combines Jung's (1971) typology with Kolb's (1984) model of learning styles, is one further example to demonstrate the growing interest type theory has received recently.

Locus of control

Locus of control is strongly associated with Julian Rotter's (1966, 1975) social learning theory. Rotter's theory is built upon the two notions "freedom of movement" and "perceived control" (cited in Lefcourt, 1976, p.28). "Freedom of movement" is a generalized expectancy of success resulting from the person's ability to remember prior experiences that led either to success or failure. "Perceived control", however, is the generalized expectancy for internal as opposed to external control of reinforcement, that is of failure or success (Lefcourt, 1976). The difference between the two concepts is that "perceived control" involves a causal analysis of success and failure. This distinction is essential. One can very well conceive of a person with a high "freedom of movement", expectancy of success, who attributes the reasons for success to external forces. On the other hand one can also conceive of a person with a low "freedom of movement", who attributes failure to internal characteristics. Locus of control is therefore not to be equated with success or failure

expectancy as perceived by the individual, but

it is concerned with our beliefs about how reinforcements are determined and should, therefore, provide an independent contribution along with freedom of movement and need value to the prediction of goal-directed activity (Lefcourt, 1976, p.28).

The relevance of locus of control has been increasingly recognized in the investigation of teacher behaviour and teacher thinking, and has been included as one independent variable in many studies (Feldman, 1983; Pigge & Marso, 1990a, 1990b; Rose & Medway, 1981; Richards et al. 1989; Sadowski & Woodward, 1983; Soh, 1986; Taylor, 1980). Lefcourt (1976) recommended that locus of control should be assessed for specific situations and specific populations, arguing that Rotter's Internal versus External Control of Reinforcement Scale had not been designed to measure perceived locus of control in particular situations. Rose and Medway (1981) and Soh (1986), therefore, used a scale specifically designed to measure teachers' perception of their own potential in influencing student achievement and classroom events. Soh, who used Taylor's (1980) Locus of Control Scale for Teachers (LCST) with Secondary School and College Teachers, found that internal teachers were more likely to involve the students in activities that enhanced their motivation. He also commented that internal teachers hold a more positive attitude toward changes in life situations and are more willing to accept responsibilities (Soh, 1986). Rose and Medway, who used the Teacher Locus of Control (TLC)

Scale, designed to measure locus of control for elementary school teachers, report that teachers with an high internal locus of control gave fewer disciplinary commands to students, had lower rates of inappropriate student behaviour and had students who engaged more frequently in self-directed activity. They also concluded that teachers attributing student achievements to their own actions would try alternative teaching strategies when faced with student failure (Rose & Medway, 1981).

In a study to investigate the psychological and personal characteristics of reflective teachers, Richards et al. (1989) define locus of control in teachers as a "definite psychological characteristic of reflectors" (p.9). This is compatible with the findings of Kortagen (cited in Richards et al. 1989) who concluded that those student teachers who perceived an internal locus of control were more reflective and used "their knowledge and values to examine and evaluate their practice" (p.4).

Pigge and Marso (1990a) while referring to Lefcourt (1982) write that it is conceptualized that teachers with an internal locus of control are more "take charge" type persons in the classroom and are more likely to help their pupils in developing feelings of control and in becoming self-motivated achievers (p.4).

Another study conducted by Sadowski and Woodward (1983) also yielded rather interesting results. They investigated the relationship between teachers' locus of control orientation, using Taylor's (1980) Locus of Control

Scale for Teachers (LCST), and students' perceptions of classroom climate, academic responsibility, and grades. Based on studies by DeCharms (1976) and Deci et al.(1981), they hypothesized that teachers with an internal locus of control orientation are seen by their students as encouraging goal setting, responsibility, and self-confidence in the classroom. Such a climate would lead students to take greater responsibility for academic outcomes. The results confirmed the hypothesis that internal locus of control and fostering of a classroom climate that stresses goal setting, responsibility, and self-confidence were positively related. It was also reported that internal locus of control and academic achievement were positively related. The third hypothesis, which suggested a positive relationship between internal locus of control and students' attributed responsibility for academic achievement did not lead to consistent results (Sadowski & Woodward, 1983). This study is of particular significance as it provides reasons to believe that students' motivation is related to how they perceive the learning environment, and that this, in turn, varies depending on the locus of control orientation of the teacher. Motivation is the decisive variable in path-goal theory which was chosen as the conceptual framework of the current study, since it was assumed that student motivation is a prerequisite for critical thinking and self-direction to occur. We may hypothesize therefore, that internal locus of control in teachers and high levels of critical thinking and self-direction in students are positively related.

In conclusion it can be argued that the findings from all of the studies

reviewed, allow to conceive of locus of control as an important variable in the prediction of teaching behaviour.

CHAPTER THREE: METHODOLOGY

Overview

This chapter describes the research paradigms the study is located in, the research design, sample, pilot study, instruments, data collection procedures, and analyses of data for the present study.

Research Paradigms

In order to address the research questions, qualitative as well as quantitative data were collected. Qualitative data were obtained for faculty from individual interviews, the conduct of a repertory grid exercise, teaching observations, and faculty's input to verbal descriptions of this teaching observation provided by the researcher. Individual interviews were also carried out with two students from each instructor. In the first case the purpose was to identify assumptions and beliefs underlying faculty's teaching practice. In the second, the goal was to further understand the results obtained for the Critical Thinking Appraisal and the Self-Directed Learning Readiness Scale (SDLRS). It is the researcher's assumption that studies in education which are conducted from a one-sided perspective, that is either the positivist, the interpretative or the critical paradigm, will suffer from the neglect of the other two. It is for this reason that the present study combined quantitative and qualitative data, as the one without the other was regarded as likely to be inconclusive in addressing the research question.

It is a common understanding that if researchers want to know more about a phenomenon they will begin to investigate it in one form or another.

The knowledge that is produced through research is understood by Merriam (1991) as the function of the questions researchers ask and the methods researchers use to answer these questions. It is Merriam's (1991) understanding, that "the questions raised and methods used are functional of the researcher's worldview" (Merriam, 1991, p.43). The assumptions researchers hold about the world and about what it means to study systematically determine the different kinds of knowledge that are produced.

Adapting the framework of Jürgen Habermas as outlined in Knowledge and Human Interest (1971), Merriam (1991) identifies three distinct paradigms that are currently operating in educational research: the empirical-analytical, the interpretative, and the critical, with the empirical-analytical being recognized as the still prevailing paradigm for research in adult education. The use of the term paradigm is central to educational and philosophical inquiry. The fact that it is used in a fairly colloquial manner today might be a consequence of the "the scientific revolution" as described by Kuhn (1962). It is Kuhn's notion that progress in science occurs when questions being asked cannot be answered within the boundaries of the old paradigm. A paradigm he defines as

what the members of the community share ... it stands for the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community (p. 175).

The dissonance that is created leads one to view and respond to the world in another way. This is what he calls a paradigm shift (Kuhn, 1962). The

meaning of the term "paradigm" is also nicely explained by Pearse (1983) who describes it as "any pattern, example, or model" (Pearse, 1983, p.158). He continues:

Educational theorists and social scientists use the word to denote ways in which knowledge or behaviour is structured and organized. In its broadest terms, a paradigm is a worldview, an internally consistent orientation from which a conceptual and operational approach to functioning in the world is constructed (p.158).

The novel conception in Habermas' (1971) work was that knowledge is not in itself neutral, as it is commonly assumed, but influenced by certain interests. Corresponding to Habermas, Merriam (1991) describes the tri-paradigmatic structure of inquiry by identifying the different kinds of interest researchers pursue and the different kinds of knowledge about educational issues that are produced by following those interests.

The Empirical-Analytical Paradigm

The main interest researchers working from the empirical-analytical paradigm share is control of the environment, that is, causal explanation and prediction become important and research follows the scientific method. The philosophical orientation underlying this paradigm is positivism. Researchers work empirically, that is, with facts which can be expressed in a numerical way. Designs can be experimental, such as field-experiments and lab-experiments, and non-experimental, such as field surveys. The goal of research conducted

from this paradigm is to generalize results obtained for one sample to the larger population. The people or behaviour under investigation become objects for studies. A main assumption of this paradigm is a notion of reality that can be observed, measured and known. Knowledge is regarded as neutral, objective and as a scientific explanation of educational practice (Merriam, 1991).

The Interpretative Paradigm

Whereas empirical-analytical research aims at explaining causal relationships and arrives at significance of the research findings only through generalizability of the obtained results, the main interest of researchers working from the interpretive paradigm is the *understanding* of what a certain experience *means* to the people studied. "The interest here is in experientially meaningful, authentic intersubjective understanding" (Pearse, 1983, p.160).

The interpretative paradigm is often also called the hermeneutic paradigm. Hermeneutics is a method of analysing the written material. In this sense the research is qualitative instead of quantitative. The philosophical orientation of this paradigm is phenomenology. Reality is not an object that can be discovered and measured but rather a construction of the human mind. In the same sense there is not only one reality but multiple realities. The world is understood as highly subjective. Common methods for data collection are the interview or observations, both usually conducted over an extended period of time period. As knowledge is understood as constructed, it is automatically assumed to be dynamic. New constructs permit new perspectives and

subsequent knowledge claims. In an earlier work devoted to case studies in educational research, Merriam (1988) gives a succinct description of this kind of inquiry and its inherent subjectiveness:

qualitative researchers are interested in meaning - how people make sense of their lives, what they experience, how they interpret these experiences, how they structure their social world. It is assumed that meaning is embedded in people's experiences and mediated through the investigator's own perceptions. A researcher cannot get "outside" the phenomenon (p.19).

A similar stance is taken by Manen (1990) who tries to define the very nature of phenomenology, a specific methodology in human science research. Manen describes phenomenology as the systematic attempt to uncover and describe the internal meaning structures of lived experience (Manen, 1990). The interpretive paradigm has been vigorously criticized by researchers from the "positivist camp" who argue that qualitative research methods in general are devoid of any acceptable standards of rationality and truth. In particular, the issue of the nongeneralizability of the research findings has been a major concern. Kemmis and Carr (1986) criticized the interpretive paradigm for a different reason. Calling for critical action research in education they state that it was not in itself *sufficient* that educational theory had been recognized as being grounded in the interpretations of others. As they acknowledge that it might be true that consciousness defines reality, they raise the point that reality

may also systematically distort consciousness. The self-understanding of an individual might be shaped by illusory beliefs which sustain irrational forms of social life (Kemmis & Carr, 1986). On the basis of this criticism Kemmis and Carr describe their view of an appropriate approach in educational theory. This view is known as the critical paradigm (some authors do not consider the critical paradigm a distinct paradigm but treat it as a particular version of the interpretative) which will be described next.

The Critical Paradigm

Three out of the six distinct points Kemmis and Carr (1986) identified are that an educational theory must reject positivist notions of rationality, objectivity and truth, must accept the need to imply the interpretive categories of the people under investigation, and must provide ways of overcoming ideologically distorted interpretations and distorted self-understanding. As suggested by the term *action research* itself, the approach to educational theory as described by Kemmis and Carr is a combination of theory and practice with the goal to change the status quo. The critical paradigm holds as a major assumption that researchers working from this model should share a commitment to organized, deliberate, and prudent action. This perspective requires researchers to think critically about society. The goal of research is (social) change which is understood as an empowering and emancipatory process. Knowledge therefore is seen as subjective, but also emancipatory and productive of fundamental (social) change (Merriam, 1991). Advocates of this paradigm

criticize the positivistic paradigm for its instrumental rationality. The notion is that theories established through positivistic research are passed on to the practitioner, like a commodity, who in turn takes them for granted and applies them in a technical manner, without ever questioning or challenging the way this "knowledge " was created. Discussing the theory-practice gap in education, Zuber-Skerritt (1992), in her latest book on staff development in higher education, describes the weaknesses and implicit dangers in conducting educational research mainly from this paradigm as follows:

And both staff and students would use educational theory as educational "technology" which might solve some superficial problems through the development of technical skills, but which would not solve more complex, existential problems at a very specific level (p. 25).

The belief presented here is that educational knowledge needs to be created context-specifically and should involve reflection and self-reflection. The means to achieve this is known as action research. The same notion is advocated by Cross (1990b) who calls for "classroom research" where the teacher is no longer limited to the role of "the observed" but is also an observer and researcher himself. Through classroom research, which involves systematic inquiry, teachers grow or develop into professionals by increasing their insights and understanding of the relationships between teaching and learning. Action research has been defined in various ways. Possible definitions include:

Research by (higher education) teachers themselves into their own

teaching practice and into student learning (with the aim of improving their practice or changing their social environment) or briefly, "the teacher as researcher" (Zuber-Skerritt, 1992, p. 88).

A process in which the "practitioners" are included as evaluators, which features collaborative planning and data-gathering, self-reflection and responsiveness, and which embodies a substantial element of professional development. "Ownership" of the evaluation is vested in the 'practitioners' (Batchler & Maxwell, 1987, p.70).

The research needed for social practice can best be characterized as research for social management or social engineering. It is a type of action research, a comparative research on the conditions and effects of various forms of social action, and research leading to social action.

Research that produces nothing but books will not suffice (Lewin, 1948, pp. 202-203).

...activities (that) have in common the identification of strategies of planned action which are implemented, and then systematically submitted to observation, reflection and change. Participants in the action being considered are integrally involved in all of these activities (Grundy & Kemmis, 1982, p.84).

"A change process based on systematic collection of data and then selection of a change action based on what the analyzed data indicate" (Robbins, 1993, p. 678).

What the different definitions of action research have in common is an understanding that the action research process is a problem- solving process.

Beyond Paradigm Boundaries

Merriam (1991) warns the researcher not to let the method determine the question. She also urges researchers to question the assumptions they hold about research, the nature of reality, and knowledge. Research should be seen as an integral part of the educator's job and should also be considered as a "moral activity" (Merriam, 1991, p.59 and p.61). An integration of the three paradigms is envisioned by Merriam but also dismissed as illusionary, at least for the near future, as the ongoing debate among scholars was not about the possible integration of the different paradigms (that is a broadened perspective assumed by the researcher) but, absurdly, about the extent to which research methods characteristic for particular paradigms can or should be mixed (Merriam, 1991). The basic thought underlying Merriam's work is that research that exceeds the boundaries of the established paradigms would yield *more* reality. Popkewitz (1984) takes a similar stance in his discussion of research paradigms. He argues that the emergence of these three paradigms in North America is an artifact of our time, by which he means that certain economical and social-political circumstances are the roots for these current perspectives in research. In the former Soviet Union only one single paradigm emerged as the result of historical/political and economic factors. The philosophical root of science is called dialectical materialism. Dialectical materialism is the result of

transforming the ideals and premises of socialism into a method for scientific study. It is a social-philosophical view of society. It "poses fundamental questions about the nature of people and the transformation of the social and physical world" (Popkewitz, 1984, p.62). It is Popkewitz's notion that each paradigm provides a particular vantage point from which to consider social life. He concludes that the three existing paradigms in North America enable researchers to gain greater insights into the whole of reality and also into the relationships among the elements within this reality (Popkewitz, 1984). The researcher of the present study shares this notion of reality and knowledge about reality as described by Merriam (1991) and Popkewitz (1984). To describe what a phenomenon is like from the outside, to further include how this same phenomenon is experienced or *lived* by the people involved in it, and finally as a researcher to actively interfere and collaborate in a (learning) process that has as its final goal to improve the status quo (here teaching effectiveness), is what responsible research could be like. For this reason an integration of the positivistic and the two interpretative paradigms is sought. It can be argued that the implications of the current study also reach into the critical (interpretative) paradigm. Since a part of the study was to investigate whether faculty's teaching behaviour is related to the assumptions and beliefs faculty hold about teaching, distorted assumptions regarding their theory-of-practice may be identified. On a personal level, faculty who became aware of the assumptions underlying their philosophy of practice and of the

consequences of this philosophy on their teaching might deliberately take action in order to change their teaching behaviour. Awareness- raising regarding one's philosophy of practices might also have social implications. New curricula may be developed on the basis of new assumptions which will have a direct impact on the teaching (and learning) that will occur in institutions of higher education. It could also be argued that if ways to best facilitate critical thinking and self-direction in higher education can be identified, and if these results are recognized and implemented, these findings could contribute to a critical, informed and emancipated public sphere. Finally it should be added that action research is a process of experiential learning (Kolb, 1984) which is given when all data and insights are shared between the people involved in the project. This sharing will facilitate reflection on the experience or action, which will finally lead to the generation of abstract concepts and generalizations. Implied here is an understanding that educational theory needs to be grounded in educational practice. The concept of sharing also means that research is conducted collaboratively. It rejects the idea of "the researcher" on the one side and "others whose behaviour is studied" on the other, but conceives of all people involved in the study as a team of researchers who engage in a continuous process of data triangulation until they reach a consensus on the meaning or interpretation of the data collected. Zuber-Skerritt (1992) refers to this kind of triangulation of data as "learning conversations" (p.222).

Since most data were shared and triangulated with the people who

agreed to participate in the present study during individual meetings, learning conversations as described by Zuber-Skerritt were approximated to some extent. However, the present study does not represent action research in a "strong" sense, since a fundamental component of action research is clearly missing: this is the development and implementation of an action plan and the simultaneous and continuous evaluation of this plan which will lead to further changes with the final goal to improve the status quo. According to Zuber-Skerritt (1992) action research is only complete if the people whose teaching is studied are involved in the process throughout, including writing the final report. Both criteria, development and implementation of an action plan as well as the reporting of the research findings together with faculty, are crucial to action research but are neglected in the present study due to limited available time.

Difficulties in Integrating Research Paradigms

A paradigm was previously defined as "what the members of the community share ... it stands for the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community" (Kuhn, 1962, p.175). When we try to combine the three research perspectives as outlined above, we soon come to realize that a true integration of paradigms needs to be different from a blend or integration of mere research techniques. Talking of an integration of research paradigms means talking of an integration of different worldviews or philosophies; and this seems to suggest a contradiction, because if I only believe in the one view I cannot simultaneously

share the assumptions underlying the other. Following this argument further means that believing in the need for generalizability of research results necessarily excludes the simultaneous belief in the need to understand what this experience means for the person involved, or whether the person's reactions or behaviours in a certain situation are the results of certain distortions of assumptions the person holds. It becomes obvious that these are three different goals or intentions. However, the question remains if they are necessarily antithetical! Acknowledging that the three paradigms have a different set of goals, values, and assumptions, the crucial question is not whether or not certain methods, which align with a certain paradigm, can be used in combination with others, but why they are used, what are the underlying assumptions for using them, and what is the anticipated gain from the employment of these methods? For the present study quantitative and qualitative methodologies were used. It was the researcher's understanding that the problem under investigation posed questions which addressed all three paradigms. Some parts were studied primarily from a quantitative perspective: the question of whether students' perceptions of teaching behaviour is related to student critical thinking skills and self-direction; and the question of whether student psychological type is related to student critical thinking and self-direction. The results obtained for the first question, however, were not really generalizable, since the faculty sample consisted of only four faculty members. Since generalizability is the major goal of quantitative research, the argument

could be forwarded that there was no real purpose in studying the question quantitatively. This point would be well taken. One response is that the results obtained in this study provide some basis for future research which can aim at validating the quantitative results. In order to gain further insight into the problem, qualitative data were collected on self-direction and critical thinking. This was done to arrive at a better understanding of how the students perceived themselves in terms of these two variables. These data were then used to triangulate the data which were obtained through the quantitative analysis. Other parts of this research were studied primarily from a qualitative perspective: the question of whether faculty's espoused theory of teaching is congruent with their theory-in-use; the question of whether their locus of control orientation and psychological type is related to these beliefs; and whether these beliefs are expressed through their teaching behaviour. Teaching behaviour, here, is perceived teaching behaviour, more specifically, the behaviour as it is perceived by the researcher and by faculty (since faculty input was invited to the researcher's perceptions). However, it also was investigated whether students' perceptions of teaching behaviour was related to faculty's teaching philosophy. Perceived teaching behaviour was measured quantitatively in this case. The results, which were group ratings on each factor of the TBAS, were discussed in relation to teachers' philosophy. These questions were posed and investigated to further understand why teachers behave the way they do. One could argue that this is still not an integration of paradigms but rather a mosaic

consisting of various "chunks" of research designs borrowed from the three existing paradigms, since a variety of questions are asked and each question is addressed with the most appropriate or meaningful method. This is true; however, at this point one should not lose sight of the actual research problem: it was not the case that two independent questions were studied, whether A leads to B (primarily qualitative) and whether B leads to C (primarily quantitative), but it was investigate whether there is also a relationship between A and C. The question of interest was whether the implicit goals of higher education really are accounted for in the university classroom; in other words, do faculty truly believe in critical thinking and self-direction as they state on an espoused level, and, is what they believe related to students' critical thinking and self-direction? Since beliefs are expressed through behaviour, and behaviour is perceived by others and has an influence on these others, (Jahnke, 1982; McKeachie, 1986; Zinn, 1990), perceived teaching behaviour was one of the variables studied. This problem suggested the use of methods from all three paradigms. The question of whether it is appropriate to talk of an "integration" of research paradigms, or whether one can only talk of a combination of research techniques (the distinction between the two was pointed out nicely by Merriam [1991]), is a philosophical question that cannot be done adequate justice on a few pages. For the present discussion, the following tentative conclusion may be suggested as a sufficient argument: if it were true that an integration of the three paradigms would mean to *generalize*

the research findings as much as possible, while at the same time, trying to *understand*, as much as possible, what the experience means for the people involved, and foster at the same time, as much as possible, *critical reflection* on this experience with the goal to identify and change invalid assumptions, then an integration of research findings is approximated in this study.

Summary

The questions investigated in this study are based on the assumptions underlying the three broad paradigms currently prevailing in educational research, that is the positivistic, the interpretative, and also, even though to a less obvious degree, the critical, and calls for a dynamic synthesis and the abandonment of the artificial delimitations that have been established between them. Each perspective allows insight into a certain aspect of reality.

Research Design

In order to investigate whether there is a relationship between faculty's philosophy of practice, their psychological type, locus of control orientation, and their teaching behaviour as perceived by their students, a qualitative methodology was applied. Data were collected through interviews with faculty and observations of their teaching.

In order to determine whether there is a relationship between teachers' applied leader behaviour as perceived by their students and the development of critical thinking and self-directedness in students, a correlational methodology

was used. Teachers' behaviour as perceived by the *individual* students became the independent variable, and critical thinking and self-directedness were considered the dependent variables. To further elaborate on the questionnaire data, qualitative data were collected on self-directedness in students.

In order to measure teaching behaviour, a scale was developed and tested for validity and reliability.

Pilot Study

A pilot study was conducted in order to test the process of the quantitative data collection. The instruments used were the PET Type Indicator, the Teaching Behaviour Assessment Scale (TBAS), the Watson-Glaser Critical Thinking Appraisal, and the Self-Directed Learning Readiness Scale (SDLRS). The TBAS was designed by the researcher, and validity and reliability for it had not been formally established at that point. Instruments were completed by 60 undergraduate students in the Faculty of Education at Brock University during class time. It was assumed that the completion of the instruments would take between 50 and 60 minutes. The actual time needed to complete the instruments was measured and this assumption was confirmed. Copies of each of the four different instruments were handed out to the students by the researcher at the beginning of class time. The purpose of the study was explained, but students were also asked to read an attached information sheet before filling out the questionnaires. The sheet explained

again the purpose of the study, ensured the students that all data would be kept confidentially and be treated anonymously, emphasized that participation was voluntary, and explained the meaning and purpose of the ID number each student found on the psychological type test. To allow for later analysis of the data, students were asked to write the same number on each questionnaire they received. They were also encouraged to copy their ID number so that they could obtain their results if they wished.

The pilot study indicated that the time allocated for the administration and completion of the four instruments was appropriate. The instructions provided on the information sheet as well as on the four questionnaires proved to be clear and complete. Although it was emphasized that participation in the study was completely voluntary all students filled out and returned the forms. The whole process went smoothly and encouraged the researcher to follow the same format in the final study.

Measuring locus of control and psychological type of the instructor was not included in the pilot study since it was assumed that the instruments were self-explanatory. Validity and reliability for the psychological type test was established through former studies. The data obtained from the self-designed scale to measure teachers' Locus of Control orientation (LOCSFT) were only used for qualitative purposes. Validity and reliability testing was therefore not considered essential for the present study. However, this will be done in a future study. Validity and reliability of the TBAS could not be established with

the data obtained from the pilot study, since the students pointed out that they only had one session with the instructor prior to the data collection. The responses on the TBAS could therefore not be considered to represent reliable data. For the same reason relationships between students' scores on the Watson and Glaser Critical Thinking Appraisal (CAT), the Self-Directed Learning Readiness Scale (SDLRS), and the TBAS scores could not be investigated. Validity and reliability testing of the TBAS was done with the data collected from the final student sample. The validity of the TBAS was explored by conducting a factor analysis in order to determine whether the supportive, directive, participatory and achievement-oriented behavioral dimensions exist. Reliability was further estimated by using a Cronbach alpha analysis and inter-item correlations within the scales.

Sample

In March, 1993 a letter asking for participation in the study was sent to all instructors in the social science, humanities, business, and science departments at Brock University who were to teach an undergraduate course during the spring term 1993. Four out of the 80 instructors contacted agreed to participate in the study. These four instructors were from accounting, politics, classics, and physical education. Two were full-time professors with a finished doctorate, one was a part-time instructor with a master's degree, and one was a teaching assistant who was in the process of getting a doctorate degree. Each participant had a minimum of five years of teaching experience in

university. The student sample, which was constituted by one class of each participating faculty member, were first to third-year male and female undergraduates and amounted to a total of 162 students. During the quantitative data collection the students were asked to write down their name and phone number on the questionnaire if they agreed to participate in an individual interview. By purposive sampling, using the SDLRS score as the discriminating criterion, two students from each course were selected for the interview.

Instruments

Locus of Control Scale for Teachers (LOCSFT)

The Locus of Control Scale for Teachers (appendix 1) is a 23-item-Likert-type scale designed to measure the degree to which teachers believe that their own behaviour influences student performance and classroom events. Thirteen items (1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13, 14, and 17) are measuring external locus of control orientation. Ten items (9, 12, 15, 16, 18, 19, 20, 21, 22, and 23) are measuring internal locus of control orientation. Responses are given on a 4-point scale (strongly disagree, disagree, agree, strongly agree). The scores assigned to the internal items are to be reversed. Possible scores range from 23 to 92. Higher scores reflect a stronger external locus of control orientation. Eight of the twenty-three items were borrowed from James' (1957) Internal-External Locus of Control Scale. Item 52 on the James Scale was directly transferred without any rewording and used as item 10 on the LOCSFT. Other

LOCSFT items (1, 2, 6, 7, 8, 11, and 14) are conceptually similar to the following items on the James Scale (14, 18, 28, 30, 36, 54, and 56). The items were slightly reworded to reflect more specifically possible teacher beliefs. Style and grammar remained basically the same. The other fifteen items were generated from interview data on teaching philosophy collected from four university instructors. In order to explore the teaching philosophy of these instructors, they were asked to describe their beliefs/views about the role of the learner and the role of the teacher in higher education. It became evident that implicit in the responses to these two questions was a certain sense of having influence or not having influence over students' performance. This was interpreted as similar to Rotter's (1966) concept of internal or external locus of control.

The Rotter's (1966) Internal-External Locus of Control Scale, although the most widely used instrument to measure locus of control, was not used in the current study for two reasons: first, Lefcourt (1976) already made the point that locus of control should be assessed context-specifically, i.e., a belief in one's influence on students' performance is different from one's beliefs about the control one has over one's life. Second, the researcher of the present study could not identify with two aspects of the Rotter scale: a.) the forced-choice format, and b.) the selection of the items supposed to measure internal locus of control orientation.

Two further scales have been designed so far (Rose & Medway, 1981;

Taylor, 1980) to assess the degree to which teachers believe that they can influence students' performance. These scales were reviewed and examined for possible usage with university faculty. However, this consideration was discarded due to inappropriate item assortment in both scales.

Validity

Content validity was sought through expert review (two professors from the Faculty of Education at Brock University) and a thorough review of the literature in the area. The items were considered to measure the degree to which teachers believe that their own behaviour influences student performance and classroom events.

Reliability

Reliability has not been established to date. It is therefore not justifiable to generalize any of the results from this instrument.

Criticism

Research on Rotter's (1966) Locus of Control Scale indicated that it is affected by social desirability response bias (MacDonald, 1973). The same phenomenon is likely to affect the LOCSFT.

PET Test

The PET test is a Likert-type item self-response questionnaire designed to assess personality. It consists of 80 items. Each of the items measures one of the following eight psychological or cognitive preferences as suggested by Carl Jung (1971): Extraverted Thinking, Extraverted Feeling, Extraverted

Sensing, Extraverted Intuition, Introverted Thinking, Introverted Feeling, Introverted Sensing, Introverted Intuition. Each scale contains 10 items.

Reliability

Using the Cronbach alpha reliability analysis, the coefficients for each scale were found to be:

Extraverted Thinking	.65	Introverted Thinking	.71
Extraverted Feeling	.79	Introverted Feeling	.78
Extraverted Sensing	.75	Introverted Sensing	.75
Extraverted Intuition	.82	Introverted Intuition	.80

(Cranton & Knoop, 1990).

Although the reliability coefficient for the extraverted thinking is somewhat lower than the others, the coefficients are considered acceptable.

Validity

An attempt was made to establish construct validity through test procedures; items were based on direct quotes or paraphrases from Jung's book on psychological types (Jung, 1971).

Content validity was checked in the following manner: a sample of 16 individuals were selected, two of which displayed a dominant preference for each of the eight scales of the test (measured by both the PET test and the Myers-Briggs Indicator); these subjects were given a reading from Jung, related to their type and they were asked to select those items from the test which measured that type. The participants were found to do this with 80% to 90%

accuracy, depending on their type, with ETs again being the lowest (Cranton & Knoop, 1990).

The PET test produces 8 scale scores, each ranging from a minimum score of 0 to a maximum score of 100. On a standardization sample of 807 individuals, the mean scores for the extraverted functions have been shown to range from 57.45 to 62.10, with standard deviations of 16.68 to 20.05. The mean scores for the introverted functions range from 15.43 to 27.12, with standard deviations of 13.30 to 15.71. These data are in accordance with the theory which predicts that there are considerably fewer introverted individuals in the population.

Since this analysis was conducted, the test has been changed slightly in terms of the items measuring extraverted intuition. To date, new measures on reliability and validity have not been done. However, it is suggested that the results of the new measures will only vary to a minimal extent.

Watson-Glaser Critical Thinking Appraisal

The Watson-Glaser Critical Thinking Appraisal consists of the following five subtests: Inference with 20 items, recognition of assumptions with 16 items, deduction with 25 items, interpretation with 24 items, and evaluation of arguments with 15 items. Due to time constraints only three of the five subtests were used in the present study. These were *recognition of assumptions*, that is "Recognizing unstated assumptions or presuppositions in given statements or premises" (Watson & Glaser, 1980, p. 2), *interpretation*, that is "Weighting

evidence and deciding if generalizations or conclusions based on the given data are warranted" (Watson & Glaser, 1980, p. 2) and *evaluation of arguments*, that is "Distinguishing between arguments that are strong and relevant and those that are weak and irrelevant for a particular question at issue" (Watson & Glaser, 1980, p. 2). Each subtest has a possible total score of 16. The test is frequently used to "measure gains in critical thinking abilities resulting from instructional programs in schools, colleges, and business and industrial settings" (Watson & Glaser, 1980, p. 9), to predict success in programs where the ability to think critically is important, and to explore and determine relationships between critical thinking abilities and other abilities or traits. Comparable forms (Form A and Form B, and also their predecessors Am, Ym, and Zm) are available, which allow to measure the development of these skills as a consequence of specific instruction. However, in the current study only form A was used since no pre-posttesting was done.

Reliability

An odd-even split-half procedure indicated a Spearman-Brown reliability coefficient .85 to .87 based on samples sized from 200 to over 10,000. Only one test-retest study was conducted. However, this one yielded a coefficient of .89. As the test consists of the two parallel forms YM and ZM, the equivalent-forms method was used in two studies. In both instances alternate forms correlations of .72 were obtained. Alternate forms correlations obtained for the subtests ranged from -0.08 to .60 (Ryan, 1984). Since each of the subtests is

supposed to measure a different skill, the low correlations are to be expected.

Validity

Content validity was established through expert review. Although the CAT has been found to correlate with general intelligence, studies using factor analysis demonstrated that the test measures a "dimension of intellectual functioning independent of that tapped by the (Guilford) structure of intellect system" (USA Manual, p.13, cited in Ryan, 1984, p.602).

Criticism

Content and construct validities are considered major shortcomings of the test. It is not clear whether the test represents a sufficient range of the critical thinking abilities required in real-life situations (Ryan, 1984). The lack of clear evidence regarding predictive validity is also emphasized as a major shortcoming by Ryan (1984).

Self-Directed Learning Readiness Scale (SDLRS)

The Self-Directed Learning Readiness Scale is a 58-item Likert-type scale and was developed by Guglielmino as part of her doctoral dissertation in 1977. Guglielmino (1989) states that the SDLRS "is a measure of an individual's current level of readiness to engage in self-directed learning" (p.236). The term "readiness" was chosen to indicate that the capacity to engage in self-directed learning is developable, and to make the point that "readiness to engage in self-directed learning exists along a continuum and is present in each person to some degree" (Guglielmino, Long, & McCune, 1989,

p. 236).

A modification of the Delphi technique was used in a three-round survey, in which 14 authorities on self-direction in learning participated. These experts were asked to name and rate abilities, attitudes and personality characteristics they considered important in terms of self-direction in learning. The characteristics emerging from the Delphi survey with a median rating of "desirable", "necessary" or "essential" (Guglielmino et al., 1989) were used as a basis for the construction of items for the SDLRS. The instrument then was administered to 307 subjects in Georgia, Canada, and Virginia. A factor analysis indicated the following eight factors as present in self-directed learning: Openness to learning opportunities, self-concept as an effective learner, initiative and independence in learning, informed acceptance of responsibility for one's own learning, a love to learn, creativity, future orientation, and the ability to use basic study skills and problem-solving skills (Guglielmino, 1977, p.6467 - A).

Reliability

A reliability of .87 was estimated by using a Cronbach Alpha analysis. According to Guglielmino et al. (1989), the most recent data analysis of 3151 subjects yielded a Pearson split-half reliability estimate of .94.

Criterion validity

Guglielmino, Long, and McCune (1989) provide the following information as evidence for the validity of the scale:

At least 17 studies have been conducted specifically to examine the validity of the SDLRS, and a recent meta-analysis of 29 studies using the scale provides further evidence of its validity revealing positive associations with self-directed learning activities (.27), autonomy (.22), and growth orientation (.22), and a negative relationship with dependence (-.12) (p.238).

However, it should be noted that these correlations are actually fairly low, accounting for only a maximum of 7% of the variance of the criterion variables.

Construct validity

In a study to determine the construct validity of the SDLRS, Finestone (1984) stated: "The SDLRS appears to measure personal characteristics related to self-directedness. Results of the test correlate significantly with some behaviours associated with self-directedness" (pp.182-183).

Predictive Validity

Some potential to predict success in self-directed learning courses from SDLRS scores was supported by a study by Savoie (1979) as cited in Finestone (1984). Finestone, however, emphasizes that not enough work on predictive validity had been done on the SDLRS to allow for any absolute predictions from the scale.

Criticism

The SDLRS has been frequently criticized since it was designed. Only a small selection of this academic discussion will be delineated here. Field

(1989), in a critique of the SDLRS, questioned the validity of the factor analysis conducted by Guglielmino. Using common factor analysis on a sample of 244 students, Field obtained four factors accounting for only 30% of the variance. In addition, one of these factors (factor three) contained only loadings from negatively-phrased items, and thus was considered an artifact of the wording of the items, rather than a meaningful factor. The remaining three factors he labelled: Love of and/or enthusiasm for learning, initiative and independence in learning, and acceptance of responsibility for one's learning. Reliability was tested using Cronbach's alpha coefficient. Field (1989) pointed out that only love of and/or enthusiasm for learning (.71) and initiative and independence in learning (.76) achieved "acceptable" coefficients. Facility with negatively-phrased items indicated a coefficient of .64 and acceptance of responsibility of one's own learning a coefficient of .55 (p. 135). Field's criticism was countered by McCune, Guglielmino, & Garcia (1989). McCune et al. defended the method of factor analysis chosen by Guglielmino. Her argument is that since Guglielmino had not set forth any hypotheses to be tested, she was correct in using an exploratory or principal component factor analysis for her data. Field, however, was attempting to confirm the underlying factors and should have used confirmatory factor analysis and not a common factor analysis. Her conclusion is that Field's article had been based on inadequate or weak statistical applications. His findings should have been dismissed as "unreliable and invalid" (McCune et al., p.245).

Another criticism is that the SDLRS was developed for an academic population and would not be suitable to assess self-directedness in working-class people (Brookfield, 1986; Brockett, 1985). For the present study this criticism is of less significance since university students can generally be considered academics.

Although the SDLRS is widely acknowledged as a "promising instrument with great potential" (Finestone, 1984), it seems not to be justifiable at this point to label the SDLRS truly reliable or valid. Further research is clearly necessary.

As no other known instrument has better measurement qualities, the SDLRS has been selected for use in the current research study. At the same time it is acknowledged that the definition of self-directed underlying this study is not completely captured by the construct underlying the scale.

The SDLRS produces one total score, based on a standardized scoring procedure developed by Guglielmino. The mean of the instrument has been established to be 214, with a possible range of scores from 141 to 285.

Teacher Behaviour Assessment Scale (TBAS)

The TBAS is an instrument designed to measure students' perception of the extent to which their teacher performs certain behaviours in the classroom (Appendix 2). It consists of 38 Likert-type items, each scored on a 5-point scale. Most of the items were taken from a teaching evaluation item bank used by the Instructional Development Office at Brock University containing more than 100 items. Each of the 38 items was deliberately selected as to measure

one of the four dimensions in House's (1971) path-goal theory: supportive, directive, participatory, and achievement-oriented behaviour. The selected items were reviewed by two professors from the Faculty of Education who had some expertise in the area of leadership and were familiar with path-goal theory. After all the items had been agreed upon by the researcher and the two reviewers, the scale was administered to a total of 143 undergraduate students. These students were from four different courses; accounting, politics, physical education, and classics. They were asked to fill out the form for the instructor they were taking the current course with. By the time of the data collection, all students had a minimum of 12 hours of exposure to the instructor. The questionnaires were coded so that identification of instructors was possible. Since the collected data were then for four different instructors, these differences between instructors had to be accounted for in order to do meaningful inter-item correlations. To this end, deviation scores (instructor class means subtracted from each raw score) were calculated. Deviation scores have been shown to yield a more meaningful factor structure of student ratings of instructors (cf. Cranton & Smith, 1990; Larson, 1979). Deviation scores were used in all subsequent analyses of the TBAS data. Inter-item correlations among the new variables were conducted. The results supported the concept that the 38 items measured different dimensions of leader behaviour since most of the variables which were expected to measure the same dimension did in fact correlate. However, the fact that some variables

which were expected to measure different dimensions also showed high correlations indicated that there may be an overlap between these dimensions. Overall, however, the inter-item correlation analysis supported the concept underlying the TBAS and led to the conduct of a factor analysis.

A principal components factor analysis was conducted using all 38 items. The obtained factors were subjected to a varimax rotation. Eleven factors were identified in the analysis. However, factor seven to eleven, with eigenvalues ranging from 1.29 to 1.04 accounted together for only 26.8 percent of the variance. Factor one to six together accounted for 52.1 percent of the total variance. Factor six with an eigenvalue of 1.44 accounted still for 3.8 percent of the variance. Only the first six factors were considered meaningful. Table 1 shows the eigenvalues, percentages of variance, and the cumulative percentage of variance for each identified factor. Factor one, with an eigenvalue of 9.64, accounted for 25.4 percent of the variance. Factors two to six, with eigenvalues that ranged from 2.83 to 1.44, together accounted for another 26.8 percent of the variance. It was then examined which items load most highly on factors one to six. Although some items showed high loadings on more than one factor only the highest loadings on each factor were considered.

Table 1

Eigenvalues, Percentages of Variance, and Cumulative Percentages of
Variance for each Identified Factor

Factor	Eigenvalue	Percentage of Variance	Cumulative Percentages of Variance
1	9.64	25.4	25.4
2	2.83	7.5	32.8
3	2.22	5.9	38.7
4	2.05	5.4	44.1
5	1.58	4.2	48.3
6	1.44	3.8	52.1

Eight items were identified as defining factor one. The loadings ranged from .40 to .72. Factor two was determined by seven items with factor loadings from .46 to .78. Six items were identified as loading highly on factor three. The loadings ranged from .44 to .77. The fourth factor was determined by only three items which loaded highly on the factor; the respective loadings were .57, .70, and .79. The fifth factor was mainly defined by five items with loadings ranging from .45 to .73. Finally, four items seemed to establish factor six. Three of them showed loadings from .51 to .74. One item however loaded only with .25. Five items (1, 2, 30, 33, and 35) did not load on any of the six factors and were eliminated in later analyses.

The factor analysis indicated that 33 out of the 38 items on the Teaching Behaviour Assessment Scale (TBAS) measures one of six different dimensions of leadership behaviour.

Compatibility with Path-Goal Theory

Path-goal theory suggests that leaders perform basically within four dimensions of leader behaviour: supportive, directive, participatory, and achievement-oriented. The TBAS was designed to measure students' perceptions of their teachers' behaviour within these four dimensions. It was anticipated therefore that the factor analysis would identify four factors. However, as was described above, not four but six dimensions seemed to be addressed by the TBAS. It was then investigated what these six dimensions were in order to label the factors. Factor one was made up of the following eight items:

- 12. The instructor encourages me to excel in what I'm doing.
- 15. The instructor emphasizes excellence in performance.
- 16. The instructor shows confidence that students can attain high-challenging goals.
- 18. The instructor frequently asks if clarification or assistance is needed.
- 25. The instructor always encourages me to do as well as I can.
- 26. The instructor actively helps when students have difficulty.
- 27. The instructor inspires interest or excitement in the course.
- 36. The instructor communicates ideas with conviction.

A notion of encouraging to achieve high standards is inherent in these statements. Therefore this factor was labelled "encouraging".

Factor two was defined by the following seven items:

- 7. The instructor is readily available for consultation with students.
- 8. The instructor values the opinion of the students.
- 9. The instructor is responsive to the needs of individual students.
- 10. The instructor relates to people in ways which promote mutual respect.
- 11. The instructor encourages students to ask questions.
- 24. The instructor is a good listener.

37. The instructor actively recognizes the contributions of students.

A strong sense of caring and being supportive of students led the researcher to label this factor "supportive".

Factor three was defined by the following six items:

- 5. The instructor encourages discussions among students.
- 20. The instructor gives clear guidelines for evaluation.
- 21. The instructor sets clear criteria for student assignments.
- 22. The instructor provides constructive feedback.
- 23. The instructor has set up a supportive climate for communication.
- 38. The instructor sets his or her expectations as to how students' work should be conducted.

What all these items apparently have in common is a sense of clear communication; a concern for communication among students (item 5), a concern for clear communication of expectations (items 20, 21, 38), a concern for communication of positive and negative critique (item 22), and a concern for mutual and open communication among teacher and students (item 23). A sense of providing guidance so that goals will be achieved is implied. Discussions are not just accepted but *encouraged*, a climate *is set up* which is supportive for communication (this implies a deliberate effort made by the instructor), expectations are made *clear*, feedback is *constructive*. Therefore

this factor was labelled "clear and open communication".

Factor four was defined by three items:

- 3. The course challenges me intellectually.
- 14. The instructor sets challenging course objectives.
- 17. The instructor asks thought-provoking questions.

A notion of challenge to achieve high standards is implied in these three items. This factor was labelled "challenging".

Factor five was defined by the following five statements:

- 4. Students choose their own topics or assignments.
- 6. Individual students' experiences are taken into account in the course objectives.
- 13. Students are given choices of course activities.
- 28. The instructor provides meaningful written comments or feedback.
- 29. The instructor is willing to explore a variety of points of view.

The idea of student involvement in decision-making is implied in this factor. It was labelled "participatory".

The four items defining factor six were:

- 19. The instructor has a course outline listing topics, readings, and objectives.
- 31. The instructor gives clear guidelines as to what to prepare for the next session.
- 32. The instructor selects the course topics.

34. The instructor has set up definite deadlines for assignments.

As these items describe the teacher as giving clear directions, the factor was labelled "directive". The argument could be forwarded that this factor, like factor three, also implies a sense of clear communication. This is true; however, the difference between factor three and factor six is that the latter is defined merely by decisions made by the teachers which are then communicated/conveyed to the students. The prevalent concern of factor six is that students follow rules and decisions made by the instructor. The crucial characteristic of factor three is clear communication of ideas; communication from teacher to student, from student to teacher, and among students with the goal to facilitate student achievement. Instructor decision on course objectives, topics, and deadlines might not necessarily be crucial for student achievement.

Factors two, four, and six are clearly compatible with supportive, participatory, and directive leader behaviour as identified in path-goal theory. However, the question remained why "achievement-oriented behaviour", the fourth leadership dimension in path-goal theory, did not show up as a distinct factor. Instead of one factor, three factors were identified, seeming to address three different spheres of achievement-oriented behaviour: encouragement, challenge, and clear communication. At this point it is interesting to recapitulate the definition of achievement-oriented behaviour as suggested by House and Mitchell (1974): "Setting challenging goals, seeking performance improvements, emphasizing excellence in performance, and showing

confidence that subordinates [or students] will attain high challenging goals" (cited in Yukl, 1989, p. 100. Comment in parentheses added). Whereas the other three leadership dimensions describe the actual behaviour of the instructor (behaves supportive, participatory, or directive), this dimension seems to tap an "orientation" rather than a behaviour. In a strict sense one can not really behave "achievement-oriented". However, the notion of challenge and also encouragement is certainly implied in this definition. But does this mean that an achievement-oriented leader will only behave in either challenging or encouraging ways? The question is whether achievement-orientation is a behaviour completely independent from supportive, directive, and participatory behaviour. It seems more reasonable to conclude that in order to achieve or help others to achieve, supportive, directive, participatory, challenging, or encouraging behaviour may be needed. This means that achievement-orientation may be expressed through support, direction, participation, encouragement or challenge. Path-goal theory is a contingency model of leadership, which means that the most effective leadership behaviour varies with the situation. Achievement-orientation, however, since it is an orientation and not a behaviour, is not dependent on the situation. It strikes one as more logical to argue that a leader's achievement-orientation is prevalent in all situations. There is no reason to assume that at any time a leader does not seek excellence in performance or the attainment of high standards. Even though subordinates (or students) seemed to attain high-challenging goals there

would always be room for improvement or further growth.

It has been proposed here that considering achievement-orientation as a behavioral dimension independent from supportive, directive, and participatory aspects is a flaw in path-goal theory. Instead it is suggested that achievement-orientation is characteristic for the role of the leader and is expressed through supportive, directive, participatory, challenging, and encouraging behaviour. This conclusion finds some support by the fact that only very few research studies have been conducted yet to test the achievement-orientation dimension in path-goal theory and the hypotheses about achievement-oriented behaviour could not be verified to date (Yukl, 1989).

In terms of the six factors that were identified in this study, the following conclusions were drawn. First, ("achievement-oriented") teaching behaviour can take on different forms. A concern for students to attain high challenging goals can be expressed through support, direction, participation, encouragement, challenge, and a concern for open and clear communication. Second, challenging and encouraging seem to be most indicative of achievement-orientation. However, dependent on the situation, neither challenge nor encouragement might be appropriate (or sufficient) behaviours to achieve excellence in performance. Support might be more important in one situation, direction in another, etc. This makes sense if one considers the educational literature, too. The need for challenge and support from the educator to stimulate learner's growth was repeatedly emphasized by writers

such as Brookfield (1986), Cranton (1992), Mezirow (1991a), or Novak (1992).

This study used a leadership model as a framework to explain teaching behaviour. However, important differences between management situations and classroom situations need to be briefly addressed. Achievement-orientation for managers and teachers could be described as follows: A manager/leader is primarily interested in productivity and efficiency. A teacher/leader is primarily interested in either personal and/or academic growth of the students. This means, a manager/leader, in order to keep productivity and efficiency high, may behave in either supportive, directive, participatory, challenging, or encouraging ways, depending on the situation, that are follower characteristics and task characteristics. (The deficiency of path-goal theory in not including leader characteristics as a situational variable was pointed out earlier). A teacher/leader, in order to foster learners' academic and personal growth, may also behave in either supportive, directive, participatory, challenging, or encouraging ways, depending on the situation. However, learners' growth may demand an additional behavioural dimension of the educator which may not be required for ensuring productivity and efficiency in managerial settings. This is the aspect of a concern for clear, open, and mutual communication. This finding is of paramount importance when one recalls that various studies (Chickering, 1972; Smith, 1977) emphasized the significance of an interactive climate in the classroom as a prerequisite for the development of critical thinking skills.

However, it might also be possible to argue that not including a concern for clear, open, and mutual communication as a distinct behavioural leader dimension in path-goal theory is another deficiency of the model. Recent literature on management and leadership (Knoop, 1993; Robbins, 1993) emphasizes the importance of clear communication within and across all levels in organizational settings, to ensure productivity, efficiency, job satisfaction, and low turnover.

Reliability

Internal consistency was established by using a Cronbach alpha reliability analysis with the data collected from the 143 students who participated in the study. The first scale, containing eight items measuring a dimension of teaching behaviour which was labelled "encouraging", yielded a reliability coefficient of .79. The second scale which consisted of seven items measuring "supportive" behaviour showed a reliability coefficient of .80. A reliability coefficient of .77 was established for the six items on the third scale which was classified as "clear and open communication". The three items measuring the "challenge" component in teaching behaviour yielded a reliability coefficient of .76 for the fourth scale. The fifth scale which consists of five items measuring "participatory" behaviour produced a reliability coefficient of .70. The four items on the last scale which were assumed to measure directive teaching behaviour showed a reliability coefficient of .64. This relatively low reliability estimate is due to the fact that item 19 on the TBAS loaded with only

.25 on factor six, whereas the other three items on the scale showed loadings from .51 to .74. Overall, the reliability analysis presented acceptable results. Reliability coefficients ranging from .64 to .80 show that the items within each of the scales are highly correlated and measure a distinct dimension of teaching behaviour.

Content Validity

As most of the 38 items were taken from an item bank established for the Instructional Development Office at Brock University, content validity for each of the items had been assessed already. All the items however, together with a definition of the six behavioural dimensions to which they were assumed to pertain, were also reviewed and agreed upon by two professors from the Faculty of Education at Brock University.

Construct Validity

Construct validity was established by conducting a factor analysis based on the scores obtained for each of the items. Since six leader behaviour dimensions emerged, this supported the validity of the instrument. Construct validity was further established by first deliberately choosing items that aligned well with House's (1971) definitions of supportive, directive, participatory, and achievement-oriented behaviour.

Criterion Validity

Criterion validity could not be estimated as there is no other instrument that is designed to measure the six behaviour dimensions: supportive, directive,

encouraging, challenging, and participatory behaviour, as well as a concern for clear and open communication in teachers.

Procedures

Collection of Data

In March, 1993 a letter asking for participation in the study was sent to all instructors in the social science, humanities, business, and science departments at Brock University who were to teach an undergraduate course during the spring term 1993. In particular, the letter explained the different kinds of data collection requested, the number of instruments to be completed by the students and by the instructors, and the approximate time needed to complete the instruments. Faculty were asked whether they were willing to have data collection take place during class time. The letter included an attached return envelope and answer sheet, and faculty were requested to fill this out and send it back to the researcher through interdepartmental mail within the following seven days. Four faculty members agreed to participate. In individual meetings with each faculty member, the purpose of the study was explained again in detail and convenient days for data collection were selected. This part of the data collection included the administration of a series of tests to the students and the instructor, teaching observations, and an individual interview with the instructor. Instructors were also asked whether they would mind being videotaped during the teaching observation. Three of the four instructors agreed on being taped. Hence, three dates were arranged in each

of these meetings. The first date was for the observation of teaching. The second date was for the collection of qualitative data. The third was the individual meeting with faculty. This sequence was deliberately decided on in order to ensure that students had a minimum of 12 hours of exposure to their instructor before data collection was carried out.

Collection of Quantitative Data

Data were collected during class time. Data collection took between fifty and sixty minutes. The researcher was present during data collection to facilitate the distribution and collection of the instruments. The instruments included the Watson-Glaser Critical Thinking Appraisal (CTA), the Teacher Behaviour Assessment Scale (TBAS), the PET-type test, and the Self-Directed Learning Readiness Scale (SDLRS) on the part of the students. Each of the PET-type tests was coded with an ID number and the students were instructed to write the same ID number on each form they received. Students were also advised to read an information sheet which explained the purpose of the study, the nature of the instruments, and how their participation in this study may contribute to the knowledge base in higher education. An explanation of the code number on each of the questionnaires was given and students were ensured that all data would be treated anonymously. It was emphasized that participation in this study was completely voluntary. The instructors were asked to complete a PET-type test. Later they were also asked to complete a Locus of Control Scale for Teachers (LCOSFT). This part of the data collection was

completed by the end of May, 1993.

Collection of qualitative data

Faculty. Qualitative data were collected in three ways: during observations of faculty's teaching, in individual meetings, and through invitation of written feedback on the researcher's verbal description of faculty's teaching.

Each instructor was observed in one session of his or her teaching. However, two instructors were observed twice; once while giving a lecture and the other time while leading a seminar within the same course. It was assumed that the teaching behaviour in the lecture and in the seminar might differ. Since the students were exposed to both styles, observation of teaching in both settings was considered important. Concise field notes were taken during these observations following a format as suggested by Taylor and Bogdan (1984) and Merriam (1988). Taylor and Bogdan (1984) suggested to focus the observation on a specific person or activity, to look for key words in people's remarks, to leave wide margins for notes which could be incorporated later, and to finish recording the field notes as soon as possible after observing. Merriam (1988) recommended to start the recording with reporting the time, setting, number of participants, and the purpose of the observation. As a basic guideline she suggested that field notes should include verbal descriptions of the setting, the people, and the activities, direct quotations or at least the essentials of what was said, and the researcher's own comments. In the present study the teacher's behaviour and his or her interaction with the students built the focus

of the observation. On the basis of the field notes a "thick description" of what was observed was elicited. According to Merriam (1988) "thick description" means "the complete, literal description of the incident or entity being investigated" (p.11). Lincoln and Guba (1985) also emphasize the interpretation component inherent in "thick descriptions". In qualitative research the final case study report is written by using "thick description", that is, a style and method that conveys a holistic picture of the phenomenon under investigation. Since the paramount objective of qualitative research is to enhance the *understanding* of a phenomenon, the results necessarily imply interpretation. However, the final case study report is usually written after data have been analysed by thematizing and coding. Here the term "thick description" is used with a slightly different meaning. It refers only to a further source of data themselves. The written description of the teaching observation is therefore not to be confused with a case study report which summarizes the findings of the study. However, since it is acknowledged that the researcher's observations are necessarily subjectivized, the data are considered as already interpreted although no deliberate attempt to do this was made. The purpose of writing a "thick description" of what was observed in the classroom was to make the data accessible for triangulation with faculty. This will be further delineated below. The purpose of the individual meetings with faculty was fourfold. First, there was a concern to share the data from the previous data collection with the participants of the study. Second, the assumptions and beliefs underlying

different instructors' views about teaching in higher education were inferred from the interview data. Third, it was examined whether the implicit goals of higher education, student self-directedness in learning and critical thinking, came through in faculty's expressed teaching philosophy. Fourth, it was investigated whether there is a relationship between the instructors' philosophy of teaching and their teaching behaviour.

In terms of the first objective, instructors were invited to discuss the results from the quantitative data collection with the researcher. Several days before the meeting, faculty received their type test results in the mail. Enclosed was a description of Jung's concept of the eight different psychological types and their preferred teaching styles which facilitated understanding of the test results. In the meeting, faculty were asked whether the results from the type test rang familiar and whether they thought that their teaching was influenced by their own type and by their students' types. Frequencies analyses from the Teaching Behaviour Assessment Scale (TBAS) as well as the scores on the Self-Directed Learning Readiness Scale (SDLRS) and the Watson and Glaser Critical Thinking Appraisal (CTA) were also made available to the instructors. However, there was no attempt made to "go through" all the data. The sharing of data was completely directed by the instructor's own interests. Each instructor also received a written report on their teaching. This report was developed on the basis of field notes taken during the classroom observation and was written in narrative form using "thick description". The instructors were

asked to read the descriptions carefully and comment on possible misconceptions by the observer and to mail it back to the researcher within the next three days. This part of data sharing was considered essential and were agreed upon already in the very first meeting with faculty. In two occasions the meetings were also used to watch sections of the videotapes which were run during the teaching observation. (One instructor did not agree on being videotaped and one tape was not usable due to problems during recording. This session was videotaped at a later date. A discussion of the tape with the instructor, however, was not considered feasible due to time constraints). Faculty were invited to comment freely on certain incidents on the tape. These comments were audiotaped for possible later use in the data analysis.

In terms of the second and third objective, semi-structured interviews were conducted with the attempt to tap the instructors' philosophy of teaching and to see whether they considered critical thinking and self-directedness in learning important goals of higher education. Following Scott et al. (1993), six questions were used as a framework for the "conversational" (Scott et al., 1993, p.234) interview. The questions were as follows:

- ◀ How do you view the purpose of higher education?
- ◀ How do you view the role of the learner?
- ◀ How do you view the role of the teacher?
- ◀ What methods or strategies do you usually apply?
- ◀ What are your thoughts on evaluation?

- ◀ Could you identify any constraints or phenomena in the university setting that limit you in doing what you would like to do?

The interview lasted between one and a half and two hours. Three instructors agreed to be audiotaped. In one occasion field notes were taken. Later all interviews were transcribed verbally.

In order to gain some additional information on the values and beliefs underlying faculty's teaching practice, the instructors were asked to complete a repertory grid together with the researcher. Candy (1991) introduced this concept to the adult education literature as a means to stimulate critical self-reflection. Repertory grids were originally used by George Kelly in psychotherapy who developed this techniques on the basis of his Personal Construct Theory (1955, 1963). The assumption underlying the theory is that people think within hierarchically ordered constructs, which are related to one another. These constructs are different for each individual. A construct is defined by a bipolar dimension, such as friendly and unfriendly, or dependent or autonomous, etc. All experiences are construed or interpreted along these continua. Kelly (1963) explains:

A person chooses for himself (sic) that alternative in a dichotomized construct through which he anticipates the greater possibility for the extension and definition of his system (p.64).

Kelly (1963) suggested that people use these personal constructs to

anticipate events. They use models or personal theories to make sense of the world. In this sense every person can be considered a scientist, since these anticipations or hypotheses may prove to be either right or wrong, depending on the actual experience. If an old construct proves to be invalid it need to be replaced by a better theory. So there is a possibility to change constructs on the basis of experience, that is, new information. Kelly conceded, though, that people have a natural tendency to resist changes as such, but rather to use their old anticipatory schemes to explain the world. The same phenomenon was pointed out by Brookfield (1990) who states:

It is as if a perverse psychological law sometimes seems to apply in which the strengths of commitment to beliefs and values is inversely correlated with the amount of evidence encountered that contradicts the truth of these. The human capacity for denial knows no limits (p.150).

However, through experience and reflection on experience the limitations and distortions inherent in the old constructs/models may become evident and constructs may get transformed. Mezirow's (1981, 1991a) theory of perspective transformation is also highly influenced by Personal Construct theory.

The major part of the repertory grid are the elements, usually between seven to eleven, on whose basis the constructs are elicited. The selection of these elements is dependent on the topic one would like to learn more about. In this study the elements were roles of teachers, such as facilitator, expert, co-learner, mentor, model, friend, provocateur, instructor, planner, and resource-

person. It was assumed that a person's teaching philosophy is implied in how he or she views these roles. Candy (1991) provides a useful description of the procedure of administrating a grid. Each element is written in a separate column of the grid. Each element is also written on separate cards. The cards are mixed up and the person interviewed is asked to pick three cards. Then the researcher asks: "In what way are two of these similar and thereby different from a third?". This question leads the interviewee to elicit a construct. This construct, two adjectives or phrases which represent opposites to the interviewee, are then written respectively on the left and the right side in the first row of the grid. The interviewee is then asked to rank all the other elements on a scale from 1 to 7 along this construct. This process is repeated several times until there is a sufficient number of constructs elicited by the respondent which allows for meaningful interpretations of the grid. The final grid reflects this particular teacher's view on the role of the teacher. Pope and Keen (1981) used repertory grids with teachers to enhance their perceptual awareness on their strengths and weaknesses. He developed a computer program (TARGET) which allows the respondents to elicit not only the constructs but also the elements themselves. What these grids represent in the end is teachers' perceptions of effective teaching. Zuber-Skerritt (1992) who used Keen's idea in action research on staff development in higher education, describes the value of this grid as its potential to detect incongruence between teacher's perception of their teaching practice and their perception of what

constitutes effective teaching practice. Teachers thus may discover certain deficiencies in their practice and decide on strategies for improvement. The purpose of the repertory grid she describes as follows: "The primary aim of using the repertory grid technique is to raise perceptual awareness of teachers in higher education in order to facilitate the improvement of teaching effectiveness" (p.196). This is in tune with Candy (1991) who suggested that repertory grids have a high potential to raise awareness and foster reflection on long-held beliefs and assumptions.

In the present study the repertory grid was used to identify faculty's conceptions of certain roles teachers can assume and to investigate how this relates to their actual teaching behaviour and stated philosophy of teaching.

In order to address the fourth objective, to investigate whether there is a relationship between the instructors' philosophy of teaching and their teaching behaviour, the data from the teaching observation as well as the ratings on the six TBAS scales were examined for compatibility.

Students. Individual interviews were carried out with two students from each course. During the quantitative data collection the students had been asked to write down their name or telephone number on the SDLRS if they agreed to participate in a brief interview with the researcher. From these students two from each course were selected for individual interviews. The discriminating criterion was the individual student's SDLRS score. Unfortunately, those students who scored most highly on the SDLRS did not

necessarily give their names. Although this can be considered "purposive sampling" (Merriam, 1988, p.48) it has to be emphasized that it was conducted under these restraints.

The interviews lasted between 45 and 60 minutes. The purpose of these interviews was to gain additional information on students' self-directedness in learning and how this may be related to their instructor's teaching behaviour. The students were asked to complete a critical incident exercise; that is, they were asked to describe a particular learning experience in detail. The exercise was introduced to them on a separate sheet as follows:

Think back over your life as a university student and identify an incident in which you were involved in learning that seemed/s to be a most significant educational experience.

- ◀ What was the issue?
- ◀ Why was it so significant?
- ◀ What people were involved?
- ◀ What role did the instructor play in this experience?
- ◀ Were there other people involved? If so, what role did they play in this experience?
- ◀ Did you experience any changes in your own thinking about the issue? (Adapted from Brookfield, 1987a, p.102).

After a brief clarification of the task the students were asked to spend the next 15 to 20 minutes recording this experience while referring to as many

details as possible. These responses were then discussed and further questions were asked in situations where clarification was needed. When the experience chosen by the student was not related to the course of the instructor whose teaching behaviour was researched, the student was also asked to think of the most significant learning experience in the course taught by this particular instructor. All the written responses were later analysed for their compatibility with the scores on the SDLRS.

Data Analysis

Quantitative Analysis

All quantitative data were analysed through SPSS. The question was investigated whether there is a relationship between instructors' teaching behaviour as perceived by their students, students' psychological type, critical thinking and self-direction. Descriptive statistics were calculated for the scores on the eight PET scales, the scores on the three subtests of the Watson-Glaser Critical Thinking Appraisal, and on the SDLRS. As the TBAS scale scores were standardized, descriptive statistics were not calculated for them. Then, correlations were calculated among each 18 variables (including the six TBAS scores). To investigate the main research question of whether self-direction and critical thinking can be predicted from teaching behaviour, a stepwise multiple regression analysis was used. The scores on the six TBAS Scales were acting as independent variables, and the scores on the three Watson-Glaser Critical Thinking Appraisal subtests and on the SDLRS were acting as

dependent variables. Since it was also of interest to see whether critical thinking and SDL can be predicted from psychological type, a further stepwise multiple regression analysis was conducted. In this case the eight PET scales were acting as the independent variables and the three critical thinking scales as well as the scores on the SDLRS were the dependent variables.

Qualitative Analysis

Faculty

The data collected from individual interviews with faculty were transcribed verbally. A "thick description" of the teaching observations together with the written comments from faculty on this description built the second source of data. In order to identify faculty's philosophy of teaching and its compatibility or incongruity with their actual teaching behaviour, both sources were analyzed and coded (Strauss & Corbin, 1990) and finally compared.

The grid data were analysed as a part of the instructor's teaching philosophy. The ten possible educator roles (facilitator, resource person, friend, planner, expert, instructor, mentor, model, provocateur, and co-learner) had been ranked by the instructor on a scale from 1 to 7 along several self-elicited constructs. Each educator role was then investigated in terms of the various bipolar constructs as suggested by the instructor during grid administration. Emphasis was put on which elements were construed similarly, and which constructs were related. Thus, the personal construction of the ten educator roles provided further insight into the individual instructor's teaching philosophy.

They were also investigated for compatibility with the instructor's statement on the role of the educator in higher education.

The data collected through the Locus of Control Scale for Teachers (LOCSFT) were also treated qualitatively. In order to investigate whether teaching behaviour is related to locus of control, the responses of individual faculty on the LOCSFT were reviewed for compatibility with their teaching behaviour. Since former research on locus of control in teachers indicated that an internal locus of control orientation is related to the fostering of a classroom climate that stresses goal-setting, responsibility, and self-confidence (DeCharms, 1976; Deci et al., 1981), students' enhanced motivation (Soh, 1986), their capacity to be reflective on their practice (Richards et al., 1989), and perceived academic responsibility of students (Sadowski & Woodward, 1983), three questions were asked. Since the notions of fostering "student goal-setting", "student responsibility", and "student self-confidence" seemed to be best addressed by the two TBAS categories "encouragement" and "participation", it was first asked whether an internal locus of control orientation in teachers is positively related to high ratings the instructor received on encouragement and participation. Secondly, it was asked if a high degree of compatibility between teaching philosophy and actual classroom practice were related to internal locus of control orientation in teachers. Thirdly, it was asked whether high SDLRS scores of students were related to internal locus of control orientation in teachers.

Data on psychological type for each of the four instructors, which were collected through the PET-type test, were checked for compatibility with students' type. It was expected that a teacher whose psychological type is compatible with students' type is more likely to exert influence on these students, which may enhance their motivation, and may have an effect on their self-directedness and their capacities as critical, reflective, and creative thinkers. Psychological type was also considered as one possible source for faculty's philosophy of teaching and teaching behaviour. However, the small sample of four instructors did not allow to draw any generalizations.

Finally, it was investigated whether the data collected on philosophy of teaching were compatible with the scores on the six TBAS scales. The underlying rationale for this was that if a high degree of compatibility could be identified, this would provide further evidence to assume that teachers' beliefs about education have a direct influence on their practice. If there was, in addition, a relationship between the TBAS scores and the students' scores on the SDLRS and the Watson-Glaser Critical Thinking Appraisal, then, theoretically, it could be concluded that teachers' assumptions about teaching will have a direct impact on the development of critical thinking and SDL in students.

Students

The following eight factors were identified as present in self-directed learning: Openness to learning opportunities, self-concept as an effective

learner, initiative and independence in learning, informed acceptance of responsibility for one's own learning, a love to learn, creativity, future orientation, and the ability to use basic study skills and problem-solving skills (Guglielmino, 1977, p.6467 - A). The data from the interview with students were investigated in terms of these eight factors with the objective to triangulate the individual student's SDLRS scores. The students' responses to the fourth question ("What role did the instructor play in this experience?") was given particular consideration for another reason. This question taps on the student's own perception as to how much of his or her learning should/could be attributed to the behaviour of the teacher. Since the student described an incident in learning that was of significance to him, the teacher's behaviour in the situation that made the student learn is valued highly by the student. It was first investigated what kind of teaching behaviour fostered this particular student's learning and second, whether the learning that took place implied a sense of critical thinking and self-directedness. This was done for both parts of the critical incident exercise; the section on the unidentified instructor (student was asked to describe any significant learning experience) and on the instructor who participated in the study (student was asked to identify and describe a significant learning experience in the course the data were collected from). The second question was investigated by paying attention to the student's responses on the last question of the critical incident exercise ("Did you experience any changes in your own thinking about the issue?"). All data were

rewritten into a matrix in order to facilitate analysis and interpretation.

Students' academic background, age, gender, and psychological type were included as further variables.

CHAPTER FOUR: RESULTS AND DISCUSSION

This chapter introduces the results of the study. Since this research followed a combined methodology by which qualitative as well as quantitative data were collected, the results of each are presented separately.

Quantitative results

The results are presented separately for each instructor (01 - 04). No attempt is being made to compare instructors. In the section on descriptive statistics, the means and standard deviations of the SDLRS and CTA scales are introduced first. Then, the frequencies of dominant psychological type are shown, and finally the correlations among all the variables are presented. As the TBAS scores were standardized, descriptive statistics will not be presented for them. In the subsequent section on hypothesis testing, the main research questions are pursued by introducing the results of the two regression analyses that were conducted.

Descriptive Statistics

Table 2 introduces the means and standard deviations of the SDLRS and CTA scales for each instructor (01 - 04).

As can be seen in Table 2 the means of the SDLRS ranged from 203.44 to 217.10. It is interesting to note that the mean SDLRS scores for the students of instructor 01, 03, and 04 lie below the mean score of 214 as reported by Guglielmino (1977). A standard deviation ranging from 22.35 to 26.48, however, is compatible with the standard deviation of 25.59 that Guglielmino (1977) reported in her study.

Table 2

Means and Standard Deviations of SDLRS and CTA Scales by InstructorInstructor 01: (N=25)

SDLRS		CT1		CT2		CT3	
M	SD	M	SD	M	SD	M	SD
211.28	26.48	9.32	3.09	9.80	2.38	10.32	2.96

Instructor 02: (N=49)

SDLRS		CT1		CT2		CT3	
M	SD	M	SD	M	SD	M	SD
217.10	25.91	9.73	3.93	11.53	2.48	11.4	22.13

Instructor 03: (N=41)

SDLRS		CT1		CT2		CT3	
M	SD	M	SD	M	SD	M	SD
205.46	22.35	11.6	13.27	12.48	2.54	10.43	3.49

Instructor 04: (N=25)

SDLRS		CT1		CT2		CT3	
M	SD	M	SD	M	SD	M	SD
203.44	26.28	10.84	2.85	11.68	2.34	10.64	2.54

For instructor 01 (N=25) the scores of the CT1 to CT3 ranged from 9.32 to 10.32, with CT3 (evaluation of arguments) receiving the highest score, and CT1 (recognition of assumptions) receiving the lowest score. The standard deviation of 2.96 for CT3 and 3.09 for CT1 are quite high and show that the students' responses varied considerably.

For instructor 02 (N=49) the scores of the CT1 to CT3 ranged from 9.73 to 11.53, with CT2 (interpretation) receiving the highest and CT1 (recognition of assumptions) receiving the lowest score. It is interesting to note that the score for CT3 is only somewhat lower than the score of the CT2. Noteworthy is a standard deviation of 3.93 for CT1, indicating a strong diversity in students' responses on this scale.

For instructor 03 (N=41) the scores of the CT1 to CT3 ranged from 10.43 to 12.48, with CT2 (interpretation) receiving the highest and CT3 (evaluation of arguments) receiving the lowest score. CT1 and CT3 both show a high standard deviation.

For instructor 04 (N=25) the CT1 to CT3 scores ranged from 10.64 to 11.68, with CT2 (interpretation) receiving the highest and CT3 (evaluation of arguments) receiving the lowest score. It is noteworthy that the score received on CT1 is only slightly higher than the one on CT3. A high standard deviation of 2.85 on CT1 shows that there was some variation in the students' responses on this scale.

Table 3 introduces the frequencies of dominant psychological type for each of the four instructors. As can be seen in Table 3 more than half of the class of instructor 01 (N=25) shared a dominant extraverted sensing function. It is interesting to note that only two students had a dominant introverted function. The majority of the students (36.73%) of instructor 02 (N=49) were dominant on the extraverted intuition side. However, the number of extraverted intuitives seems almost balanced by the number of students who had a dominant extraverted sensing function. The rest of the students were distributed fairly evenly to either extraverted or introverted thinking or feeling. Almost half of the students of instructor 03 (N=41) shared a dominant extraverted sensing function. While twelve students had a preference for thinking, only six students shared an either extra - or introverted dominant feeling function. It is interesting to note that more than 25% of the students had a preference for introversion. Just as with instructor 03, the majority of the students of instructor 04 (N=25) shared a preference for extraverted sensing (36%). Another 36% of the students had an either extraverted or introverted thinking function. It is again, interesting to note that one sixth of the class were dominant on extraverted intuition, and that there were hardly any students of this group whose preference was the feeling function. Thirty-two percent of the students shared a preference for introversion.

Table 3

Frequencies of Dominant Psychological Type by InstructorInstructor 01: (N=25)

ET		EF		ES		EN	
f	%	f	%	f	%	f	%
2	8%	4	16%	14	56%	3	12%
IT		IF		IS		IN	
f	%	f	%	f	%	f	%
2	8%	0	0%	0	0%	0	0%

Instructor 02: (N=49)

ET		EF		ES		EN	
f	%	f	%	f	%	f	%
4	8.16%	3	6.12%	15	30.61%	18	36.73%
IT		IF		IS		IN	
f	%	f	%	f	%	f	%
5	10.20%	4	8.16%	0	0%	0	0%

(table continues)

Table 3 (cont'd)

Instructor 03: (N=41)

ET		EF		ES		EN	
f	%	f	%	f	%	f	%
5	12.19%	2	4.87%	20	48.78%	2	4.87%
IT		IF		IS		IN	
f	%	f	%	f	%	f	%
7	17.07%	4	9.75%	0	0%	0	0%

Instructor 04: (N=25)

ET		EF		ES		EN	
f	%	f	%	f	%	f	%
3	12%	1	4%	9	36%	4	16%
IT		IF		IS		IN	
f	%	f	%	f	%	f	%
6	24%	2	8%	0	0%	0	0%

Tables 4 to 7 present the correlations among all 18 variables for each instructor. Since correlations among the eight PET scales as well as among the six TBAS scales were not central to this study, these correlations, even though at times significant, will not be referred to in the text. It is at this point already emphasized, however, that the correlations among the TBAS scales may suggest a halo effect, in that they show that the students were not able to discriminate between the six different teaching behaviours the instrument was supposed to measure. This possible weakness of the study will again be referred to under "limitations" in Chapter Five.

As can be seen in Table 4, most correlations are weak to moderate in strength for instructor 01 (N=25). Interesting is a significant negative correlation between CT3 (evaluation of arguments) and extraverted thinking ($r = -.500$; $p < .01$). From the eight PET scales extraverted intuition correlates the strongest with SDLRS ($r = .36$) which fits nicely with the results Herbeson (1990) obtained in her study. It is also interesting to note that there is a moderate negative correlation ($r = -.27$) between SDLRS and CT1 (recognition of arguments). TBAS1 (encouragement) and TBAS2 (support) also show a moderate negative correlation with CT1 ($r = -.33$; $r = -.28$). A positive correlation ($r = .28$) however, seems to exist between TBAS3 (open communication) and CT2 (interpretation). There is also a positive correlation ($r = .304$) between SDLRS and TBAS2 (support). However, these correlations

Table 4

Correlations among all Variables for Instructor 01 (N=25)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
ET	1.00									
EF	.20	1.00								
ES	.39	.62**	1.00							
EN	.31	.58**	.46*	1.00						
IT	.50*	-.18	.19	.27	1.00					
IF	.16	-.11	-.06	.07	.34	1.00				
IS	-.01	.02	-.16	.09	.27	.53*	1.00			
IN	.32	.03	-.10	.21	.41	.48*	.67**	1.00		
CT1	.10	-.16	.10	-.20	.05	.14	-.07	.10	1.00	
CT2	.27	-.24	.12	-.04	.29	-.07	.01	.10	-.27	1.00
CT3	-.50*	-.05	-.05	-.24	-.19	-.09	.19	-.19	-.16	.12
SDLRS	.14	.28	.26	.36	.16	-.36	-.27	-.38	-.27	.15
TBAS1	-.10	.23	-.05	-.01	-.14	-.32	-.19	-.01	-.33	.07
TBAS2	.19	.30	.12	-.01	.04	-.29	-.22	-.02	-.28	.15
TBAS3	.14	.23	.20	-.03	-.14	-.24	-.34	-.12	-.14	.28
TBAS4	-.26	-.04	-.27	-.01	-.24	-.15	-.13	-.14	.06	-.09

(table continues)

Table 4 (cont'd)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
TBAS5	.20	.46*	.10	.23	-.16	-.08	-.14	.04	-.24	.01
TBAS6	.02	.05	-.05	.05	.09	-.14	-.14	-.01	-.20	.17

	CT3	SDLRS	TBAS1	TBAS2	TBAS3
CT3	1.00				
SDLRS	-.01	1.00			
TBAS1	.21	.17	1.00		
TBAS2	-.05	.30	.77**	1.00	
TBAS3	.06	.16	.66**	.75**	1.00
TBAS4	-.04	.19	.47*	.34	.22
TBAS5	-.05	.20	.72**	.71**	.57*
TBAS6	-.05	.19	.40	.38	.54*

	TBAS4	TBAS5	TBAS6
TBAS4	1.00		
TBAS5	.58*	1.00	
TBAS6	.20	.34	1.00

* $p < .01$

** $p < .001$

are rather weak. It is apparent that some of the eight PET scales correlate with the TBAS scales. This may be due to the fact that type influences one's perception of others' behaviour.

Table 5 shows that for instructor 02 (N=49) most correlations are weak to moderate. There is no noteworthy correlation between the three critical thinking scales and the six TBAS scales. However, a strong significant ($p < .001$) correlation exists between extraverted intuition and SDLRS, which again provides further support for the results received by Herbeson (1990). A negative correlation ($r = -.37$, $p < .01$) seems to exist between extraverted sensing and CT2 (interpretation). Again the critical thinking scales show moderate intercorrelations ($r = .276$; $r = .265$). There is a weak to moderate correlation ($r = .276$) between SDLRS and CT2 (interpretation). SDLRS also shows a modest correlation ($r = .297$) with TBAS4 (challenge). A weak correlation exists between SDLRS and TBAS3 (open communication) as well as between SDLRS and TBAS5 (participation) ($r = .247$; $r = .234$). However, none of the latter correlations are significant. Again it is apparent that some PET scales correlate with the six TBAS scales.

As for the two previous instructors, most of the correlations are again weak to moderate in strength for instructor 03 (N=41). Table 6 shows a strong correlation does exist between extraverted intuition and SDLRS ($r = .567$). This

Table 5

Correlations among all Variables for Instructor 02 (N=49)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
ET	1.00									
EF	.35	1.00								
ES	.27	.31	1.00							
EN	.14	.21	.03	1.00						
IT	.53**	.25	.10	-.05	1.00					
IF	.39	-.07	-.11	-.13	.67**	1.00				
IS	.42*	.39*	-.11	.21	.68**	.65**	1.00			
IN	.38*	.04	-.18	.08	.45**	.58**	.56**	1.00		
CT1	.01	-.01	-.12	-.01	-.06	-.13	-.06	.07	1.00	
CT2	-.05	-.09	-.36*	.15	.02	.03	.09	-.04	.14	1.00
CT3	.12	-.18	.09	-.06	.09	-.01	-.01	-.11	-.15	.26
SDLRS	.05	-.08	-.28	.56**	-.05	-.11	.59	.10	-.01	.27
TBAS1	.07	-.04	-.19	-.01	-.17	-.16	-.16	.01	-.16	-.08
TBAS2	.06	.04	-.30	-.06	.12	.14	.21	.18	-.11	.01
TBAS3	.37*	.26	.04	.23	.11	-.01	.31	.23	-.01	.12
TBAS4	.17	.01	-.13	.11	-.01	.09	-.02	.02	-.05	.11

(table continues)

Table 5 (cont'd)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
TBAS5	.28	.26	-.21	.13	.15	-.01	.25	.16	.01	.02
TBAS6	.32	.11	.15	.15	-.09	-.07	-.13	-.01	.19	-.22

	CT3	SDLRS	TBAS1	TBAS2	TBAS3
CT3	1.00				
SDLRS	.22	1.00			
TBAS1	-.01	.13	1.00		
TBAS2	-.09	.02	.59**	1.00	
TBAS3	.18	.24	.56**	.51**	1.00
TBAS4	-.02	.29	.60**	.49**	.52**
TBAS5	.02	.23	.51**	.70**	.68**
TBAS6	-.05	-.01	.25	.18	.23

	TBAS4	TBAS5	TBAS6
TBAS4	1.00		
TBAS5	.62**	1.00	
TBAS6	.21	.16	1.00

* $p < .01$

** $p < .001$

Table 6

Correlations among all Variables for Instructor 03 (N=41)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
ET	1.00									
EF	.07	1.00								
ES	.14	.20	1.00							
EN	.63**	.19	.10	1.00						
IT	.42*	-.15	-.20	.38*	1.00					
IF	.34	-.32	-.34	.13	.68**	1.00				
IS	.30	-.19	-.33	.26	.61**	.58**	1.00			
IN	.35	-.16	-.35	.33	.62**	.74**	.64**	1.00		
CT1	-.19	-.17	-.14	-.22	-.15	.02	-.14	-.04	1.00	
CT2	-.17	.01	.13	-.13	-.22	-.06	-.16	-.09	.38*	1.00
CT3	.13	.05	-.05	.10	.10	.01	.20	.01	.28	.22
SDLRS	.39*	-.01	.02	.56**	.03	.01	.05	.04	.02	.05
TBAS1	.33	-.28	-.11	.21	-.14	.09	.13	.02	-.07	.05
TBAS2	.24	-.02	.02	.10	-.15	-.02	-.03	-.08	-.13	-.06
TBAS3	.11	.06	.02	.16	.01	-.06	.01	-.01	-.14	.01
TBAS4	-.09	.05	-.19	.07	-.11	-.10	.09	-.03	-.01	.06

(table continues)

Table 6 (cont'd)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
TBAS5	-.06	.14	-.23	.02	-.31	-.25	-.09	-.14	.17	.01
TBAS	.10	.14	.18	.09	-.11	.06	-.24	.05	-.10	.07

	CT3	SDLRS	TBAS1	TBAS2	TBAS3
CT3	1.00				
SDLRS	.18	1.00			
TBAS1	.02	.39*	1.00		
TBAS2	-.15	.45*	.38*	1.00	
TBAS3	-.13	.28	.50**	.48**	1.00
TBAS4	.10	.12	.51**	.01	.24
TBAS5	.01	.30	.25	.39*	.32
TBAS6	-.13	.19	.20	.27	.25

	TBAS4	TBAS5	TBAS6
TBAS4	1.00		
TBAS5	.27	1.00	
TBAS6	.01	.02	1.00

* $p < .01$

** $p < .001$

correlation is significant in that $p < .001$. It is interesting that extraverted thinking and SDLRS also show a positive correlation ($r = .395$) which again is significant ($p < .01$). No relationships between the PET scales and the three critical thinking scales, or between the critical thinking scales and the SDLRS, can be seen for instructor 03. Of interest, however, are the correlations with SDLRS and the teaching behaviour scales. A relatively strong and significant ($p < .01$) correlation ($r = .457$) exists between SDLRS and TBAS2 (support). SDLRS and TBAS1 (encouragement) also correlate moderately ($r = .390$). This correlation is also significant ($p < .01$). Modest correlations could be found between TBAS5 (participation) and SDLRS ($r = .306$) and TBAS3 (challenge) and SDLRS ($r = .284$). The correlations between SDLRS and TBAS4 (open communication) and between SDLRS and TBAS6 (direction) are weak. Only three of the PET scales show weak to moderate correlations with some of the TBAS scales.

Table 7 shows that there is no noteworthy correlation between the three critical thinking scales and SDLRS for instructor 04 ($N = 25$). However, CT3 (evaluation of arguments) shows a modest negative correlation ($r = -.285$) with extraverted thinking. There is also a weak correlation ($r = .240$) between extraverted sensing and CT1 (recognition of arguments). As for the previous instructors, SDLRS again correlates most strongly with extraverted intuition ($r = .860$). With a probability coefficient $p < .001$ this result is most unlikely to have happened by chance. A significant ($p < .01$) but moderate negative

Table 7

Correlations among all Variables for Instructor 04 (N=25)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
ET	1.00									
EF	-.01	1.00								
ES	.06	-.01	1.00							
EN	.61**	-.01	.16	1.00						
IT	.43	-.24	.15	.12	1.00					
IF	.01	-.23	.20	-.48	.48*	1.00				
IS	.49*	.20	.28	.14	.61**	.37	1.00			
IN	.49*	-.01	.31	.14	.62**	.48*	.72**	1.00		
CT1	-.07	.19	.24	-.03	.20	.03	.15	-.19	1.00	
CT2	-.18	-.03	.05	-.01	-.06	-.06	-.02	-.22	-.01	1.00
CT3	-.28	-.03	-.01	-.17	-.01	.13	-.13	-.28	.07	.49*
SDLRS	.44	-.19	.09	.86**	.06	-.53*	-.08	-.09	-.13	.14
TBAS1	-.11	-.11	-.05	.03	-.12	.10	-.01	-.13	-.22	.43
TBAS2	.03	-.07	.33	.31	-.20	-.08	.05	-.11	-.08	.29
TBAS3	.35	.02	-.01	.49*	.24	-.06	.22	.20	-.22	.11
TBAS4	.26	-.11	.09	.47*	.11	-.08	-.01	-.01	-.35	.10

(table continues)

Table 7 (cont'd)

	ET	EF	ES	EN	IT	IF	IS	IN	CT1	CT2
TBAS5	-.13	.22	-.16	.09	-.37	-.30	.02	-.18	.07	.01
TBAS6	.28	.04	.01	.03	.27	.19	.03	.17	-.11	.27

	CT3	SDLRS	TBAS1	TBAS2	TBAS3
CT3	1.00				
SDLRS	-.03	1.00			
TBAS1	.54*	.12	1.00		
TBAS2	.30	.40	.58*	1.00	
TBAS3	.14	.42	.38	.43	1.00
TBAS4	.22	.56*	.52*	.38	.59**
TBAS5	.13	-.03	.47*	.24	.10
TBAS6	.12	-.03	.02	-.15	.41

	TBAS4	TBAS5	TBAS6
TBAS4	1.00		
TBAS5	-.01	1.00	
TBAS6	.19	-.27	1.00

* $p < .01$

** $p < .001$

correlation also exists with introverted feeling ($r=-.534$). Extraverted thinking and SDLRS are positively correlated. Of particular interest are the relationships between the six TBAS scales and SDLRS and the TBAS scales and the three critical thinking scales. CT2 (interpretation) and CT3 (evaluation of arguments) both show relatively strong correlations ($r=.433$; $r=.541$) with TBAS1 (encouragement), whereas only the latter is significant ($p<.01$). A negative relationship ($r=-.350$) exists between CT1 (recognition of assumptions) and TBAS4 (challenge). Modest correlations between CT2 (interpretation) and TBAS2 (support) and TBAS6 (direction) are also expressed by correlation coefficients of .277 to .296. SDLRS shows correlations from .402 to .562 with TBAS2 (support), TBAS3 (open communication), and TBAS4 (challenge), but only the latter is significant ($p<.01$). Five of the eight PET scales show correlations with some of the teaching behaviour scales.

Regression Analyses

Since one goal the study was to, first, investigate whether critical thinking skills and self-direction in students could be predicted from perceived teaching behaviour, and second, whether these skills differ with the psychological type of the students, a regression model was used. Two stepwise multiple regression analyses were conducted. In order to test the first assumption, the six TBAS scales were considered the independent or predictor variables, and the three CAT scales and the SDLRS were considered the dependent or criterion variables. In order to test the second assumption, the eight PET scales served

as independent or predictor variables, and the three CAT scales and the SDLRS were considered the dependent or criterion variables. The results of the two regression analyses are given below. Tables 8 to 11 contain the results of the first set of analyses by instructor. The analyses were conducted with the six TBAS scales, the three critical thinking scales, and the SDLRS scale. Tables 12 to 15 present the results from the second set of analyses.

As can be seen in Table 8, no variables met the criterion for entering the regression equation for the prediction of CT1 for instructors 01 (N=25), 02 (N=49), and 04 (N=27). The assumption that CT1 (recognition of assumptions) can be predicted from teaching behaviour did not find any support. It is interesting to see, though, that CT2 (interpretation) accounted for almost 15% of the variance of CT1 for the students of instructor 03 (N=41). No variables entered the equation at a second step. As can be seen in Table 9, no variables met the criterion for entering the regression equation for the prediction of CT2 (interpretation) for instructor 01 (N=25) and 02 (N=49). The assumption that CT2 (interpretation) can be predicted from teaching behaviour does not find support through these results. CT1 explains almost 15% of the variance of CT2 for instructor 03 (N=49). For instructor 04 (N=27), CT3 explains 24% of the variance of CT2. No variables entered the equation at a second step. As can be seen in Table 10, no variables met the criterion for entering the regression equation for the prediction of CT3 for instructors 01, 02, and 03. It is interesting that only for instructor 04 (N=27), a teaching behaviour was identified as a

Table 8

Prediction of CT1 by Instructor

Instructor 03: (N=41)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
CT2	.386	.190	.149	1	.0125

Table 9

Prediction of CT2 by InstructorInstructor 03: (N=41)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
CT1	.386	.114	.149	1	.0125

Instructor 04: (N=27)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
CT3	.490	.166	.240	1	.0129

Table 10

Prediction of CT3 by Instructor

Instructor 04: (N=27)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
TBAS1	.541	.048	.292	1	.005

predictor for critical thinking. TBAS1 (encouragement) accounts for almost 30% of the variance of CT3 (evaluation of arguments). The previous correlation analysis had indicated a moderate correlation ($r = .54$) between CT3 and TBAS1 which was also significant ($p < .01$). No variables entered the equation at a second step.

Table 11 shows that for instructor 01, no variables met the criterion for entering the regression equation for the prediction of SDLRS. TBAS4 (challenge) accounted for 9% of the variance of SDLRS for instructor 02 ($N=49$). No variables entered the equation at a second step. However, the same behaviour accounted for more than 31% of the variance for instructor 04 ($N=27$). Again, no variables entered the equation at a second step. TBAS2 (support) accounted for 20% of the variance of SDLRS for instructor 03 ($N=41$). No further variables entered the equation. These results partially support the assumption that perceived teaching behaviour is a predictor of self-direction in students. It provides also some support to the speculation that, depending on the particular group of students, different perceived behaviours may be conducive for the development of SDL (however, the study did not measure gains in SDL and thus it is not really justifiable to speak of a perceived teaching behaviour as being more conducive for SDL than another; see also limitations of the study). Also, a high standard error of beta for all three instructors makes the predictions unreliable. The results need to be interpreted with caution.

Table 11

Prediction of SDLRS by InstructorInstructor 02: (N=49)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
TBAS4	.305	.378	.093	1	.0349

Instructor 03: (N=41)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
TBAS2	.457	.415	.209	1	.0026

Instructor 04: (N=27)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
TBAS4	.562	.488	.316	1	.0034

In order to test the second assumption, that SDLRS and CT1 to CT3 can be predicted from psychological type, only the eight PET scales, the three critical thinking scales, and the SDLRS were included in the regression equation. Tables 12 to 15 give the results of these analyses.

As can be seen in Table 12, no variables met the criterion for entering the regression equation for instructor 01. For instructor 02 (N=49), extraverted intuition entered the equation at the first step and appears to be the most important variable in the prediction of SDLRS since it accounts for almost 30% of the variance of SDLRS. Extraverted sensing entered the equation at the second step. This variable accounted for an additional 10% of the variance. Together these two variables accounted for more than 40% of the variance of SDLRS. It is interesting that at the third step CT3 (evaluation of arguments) entered the equation. This critical thinking skill explains about 8% of the variance. The three variables together accounted for more than 48% of the variance of SDLRS (R square .487).

For instructor 03 (N=41) extraverted intuition was identified as accounting for 32% of the variance of SDLRS. No further variables entered the equation. Extraverted intuition entered the equation at the first step also for instructor 04 (N=27). This variable accounted for 74% of the variance of SDLRS. It is interesting that introverted intuition accounted for only an additional 5% of the total variance of SDLRS. Together, the two intuition functions accounted for almost 80% of the variance of SDLRS (R square .790).

Table 12

Prediction of SDLRS by InstructorInstructor 02: (N=49)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
EN	.546	.212	.299	1	.0001
ES	.560	.198	.404	2	.0000
CT3	.580	.186	.487	3	.0000

Instructor 03: (N=41)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
EN	.567	.221	.321	1	.0001

Instructor 04: (N=27)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
EN	.860	.178	.741	1	.0000
IN	.893	.165	.790	2	.0000

Table 13 shows that only for instructor 03 (N=41) did one variable meet the criterion for entering the regression equation for the prediction of CT1. CT2 (interpretation) seemed to account for approximately 15% of the variance of CT1 (recognition of assumptions). The assumption that psychological type might be a predictor of CT1 was not supported through the regression analysis.

As can be seen in Table 14, no variable entered the equation for instructor 01. For instructor 02 (N=49), extraverted sensing entered the equation at the first step and accounted for 11% of the variance of CT2 (interpretation). Since beta is negative this indicates an inverse relationship between extraverted sensing and interpretation (CT2). CT3 (evaluation of arguments) accounted for almost an additional 10%. Since beta is again negative this means that there is also an inverse relationship between evaluation of arguments (CT3) and interpretation (CT2). Together the two variables accounted for 21% of the variance of CT2 (R square .210). The only variable which entered the equation for instructor 03 (N=41) was CT1 (recognition of assumptions). CT1 explained almost 15% of the variance of CT2. For instructor 04 (N=27), CT3 (evaluation of arguments) could explain 24% of the variance of CT2. Since it was only for instructor 02 (N=49) that a PET variable entered the equation for the prediction of CT2, these results provide only very modest support for the assumption that CT2 (interpretation) could be predicted by psychological type of students.

Table 13

Prediction of CT1 by Instructor

Instructor 03: (N=41)

<u>Variable</u>	<u>b</u>	<u>se(b)</u>	<u>R square</u>	<u>df</u>	<u>p</u>
CT2	.386	.190	.149	1	.0125

Table 14

Prediction of CT2 by InstructorInstructor 02: (N=49)

Variable	b	se(b)	R square	df	p
ES	-.344	.025	.118	1	.0164
CT3	-.374	.024	.210	2	.0050

Instructor 03: (N=41)

Variable	b	se(b)	R square	df	p
CT1	.386	.114	.149	1	.0125

Instructor 04: (N=27)

Variable	b	se(b)	R square	df	p
CT3	.490	.166	.240	1	.0129

Table 15 shows that no variables fulfilled the criterion for entering the regression equation for instructors 02 and 03. Extraverted thinking accounted for almost 25% of the variance of CT3 (evaluation of arguments) for instructor 01 (N=25). Since beta is negative this indicates an inverse relationship between extraverted thinking and evaluation of arguments. No variables entered the equation at a second step. These results support the notion that critical thinking, in this case "evaluation of arguments" can be predicted from psychological type. For instructor 04 (N=27), CT2 (interpretation) seemed to account for 24% of the variance of CT3. Although the three critical thinking scales are supposed to measure different kinds of critical thinking, the fact that one can be partially predicted from the other might be due to the homogeneity of a university population.

Conclusion

These results do only modestly align with the expectations that perceived teaching behaviour and students' psychological type are strong predictors of self-direction and critical thinking in students.

Table 15

Prediction of CT3 by InstructorInstructor 01: (N=25)

Variable	b	se(b)	R square	df	p
ET	-.499	.0400	.249	1	.0109

Instructor 04: (N=27)

Variable	b	se(b)	R square	df	p
CT2	.490	.197	.240	1	.0129

Qualitative results

Qualitative data were analysed both for faculty and students and will be introduced separately.

Faculty

First the philosophy of teaching as stated by the respective instructors will be described by including a variety of direct quotes in order to introduce the instructor's own voice. These data will then be summarized and coded and will be presented in a table. Second, the degree of compatibility of espoused theory and theory-in-use will be pointed out by comparing the interview data to the data obtained during the teaching observation and from the repertory grid administration. The data from the teaching observation will be described in terms of the six dimensions of perceived teaching behaviour as addressed by the TBAS (encouragement, support, open communication, challenge, participation, and direction) and will be compared to the TBAS scores the instructors received from their group of students (averaged score per scale). It needs to be highlighted that no attempt was being made to describe the instructors' behaviour as a whole, but rather, the analyses were done by filtrating the narrative description in terms of the six variables the study was primarily concerned with. The instructor's scores on the psychological type test (PET) will also be examined in terms of their compatibility with the PET scores of the students. Whether the compatibility of type scores can provide further information on the students' rating of their instructor on the TBAS and on the

students' scores on the SDLRS will be discussed. Finally the instructor's scores on the locus of control scale will be related to his or her teaching behaviour and will be discussed in terms of the three hypotheses stated in Chapter Three.

Prior to this it needs to be pointed out that the present analysis was conducted with incomplete data. The narrative description of instructor 03's teaching behaviour while leading the seminar group (the narrative description of the lecture is included) and the narrative description of instructor 02's teaching behaviour while giving a lecture (the narrative description of the seminar is included) were missing. Both documents, however, did exist and were forwarded to faculty in order to invite their input. Hence, the two data files were found missing only after the researcher's and the participants' perceptions had been triangulated.

Philosophy of teaching of Instructor 01 (Physical Education)

Purpose of higher education. The purpose of higher education was seen to be one of providing the opportunity to learn content but also to learn about oneself. A strong concern for "open enrollment" was expressed. In this context the "human dimension in higher education" was seen as "critical". Universities were considered places where people should experience "rigorous challenges" in both dimensions, the academic as well as the personal. The "banking approach" to education was criticized in that the purpose of higher education should not lie in the transmission of the "knowledge of the ages".

Contrarily, critique and reconstruction of knowledge were considered primary goals. Not the accumulation of facts, but the comprehension of the concepts that underlie those facts, and the ability to make tranferences from one context to the other were highlighted as major goals of higher education.

I see universities as places where people learn how to learn. As well as learning about content and about themselves. So it is the beginning of their learning; not the end of a degree program. I really think that is sort of the primary purpose of higher education...I don't think we are just bags with lots of knowledge that we just stuff into the empty deposits we find in front of us...I also think that universities are places where we can construct new knowledge, where we can critique what is going on. And I definitely think that they are places where we should be practising social critique and social reconstruction.

Role of the teacher. The role of the teacher was described as involving two responsibilities. The first responsibility was described as being the "embodiment of the subject matter" and the second as "being there" for the students. The role of the teacher was further described as encouraging the students to use their competencies and experiences and in providing opportunities to add to these; that is, "to broaden the repertoire of their experiences." The teacher was seen to be able to "make a difference in where they are", or to foster change by being a "mirror" to them so that they can see themselves.

How I present my subject matter should be an extension of me. It should not just be an object that I'm presenting. It should be something so interwoven with my conduct and my belief system that I actually live my subject matter. No matter how often I taught it, I should retrieve that excitement that I felt the first time it touched me. I should be the embodiment of my subject matter.

To be present in class means to be present for the learner. Some of them need a kick, and some of them need a stroke. ...I really try to take the student where he or she is and not consider the previous record... because I like to think that I can make a difference in where they are.

Role of the learner. The learner was described as being competent and intelligent and as coming to a new learning situation with lots of experience. It was also believed that learners do have a certain readiness to learn which is expressed by their choosing to go to university. It was emphasized that they are unique individuals with unique personalities. They should face some rigorous challenges at the university, so that they learn something about themselves and develop personally while they are also expected to grow academically by dealing with subject-related content. However, the learner was also seen as having learned "how to beat the system". It was conceded though that some students would already view learning as something inherently valuable, others would still have to learn this.

The learner's role is to take on more responsibility for his learning, to

draw on their competencies and experiences and to develop new competencies and broaden their repertoire of experiences. And I try to do it in a way that is not behaviourist, so that they are not only doing things for rewards. I try to do it in a way so that they see it as being a personal responsibility to themselves: to improve. I believe that they are intelligent and competent, and more or less interested in the subject matter otherwise they would not be here. That they have experiences; I believe that about them.

Strategies. "To build in difficulty" was considered an important strategy. It was emphasized that the content should be a part of the process. Formative evaluation was another strategy mentioned. Early submission of students' work so that they can receive immediate feedback from the instructor was considered important. Through this process, it was believed, the students would be given the opportunity to take on ownership over their course.

So I don't see content and process as antithetical. In my courses I try to find ways through process to teach something about content.

Evaluation. People are given choices in that they can either write a midterm exam or write an essay. Criteria for what separates A work from B work are discussed with the students. It was stressed that it is important that the students understand the criteria underlying the evaluation system.

And they need to have an understanding of what I mean; that A work is not just saying what someone said to you. A work is making that

conceptual jump whereby it isn't someone else's work any more, it is work that you read and appropriated and made your own somehow, and reexpressed it in a language that is meaningful to you and takes it a little further than just plain regurgitation. And I keep telling them: "You're taking these blocks that everyone was been given and doing something with them that is yours. That's what makes it A work."

Content is considered important in the evaluation but also the way it is presented. Particular consideration is given to creativity. The way students express themselves in writing is considered in the evaluation "Writing is important. It is an extension of ourselves". All students are also required to keep a journal where they have to express their experiences and reflections in language. This journal is not evaluated by the instructor. However, they also have to do a journal analysis of their own journal entries. The criteria for this analysis are given to the students by the instructor. This analysis of their own journal writing is then graded by the instructor: "The challenge is to justify their grade." This procedure is used "to allow them to take some ownership over their course", and is termed "self-evaluation" since the students reflect on and analyse their own work. The criteria for evaluation are discussed and developed together with the students. Peer evaluation is considered a worthwhile strategy, while it is recognized at the same time that students do prefer being evaluated by an expert. The important point is seen to be students being able to justify their work; that is, to understand the criteria underlying the

evaluation and to assess clearly whether or not their work meets these criteria.

I really like them to get a sense of ownership, I like them to get a sense of responsibility but the ownership is becoming easier; now I have to find ways or strategies where they take on more responsibility.

Restraints. The first constraint identified by this instructor (01) was the university requirement to hand in a prepackaged course outline within the first two weeks of classes, since this "object" would then be "looked at as a given" by the students. There would be no sense of ownership on the part of the learner if every minute detail of the course was accounted for by the outline designed by the instructor. Another constraint identified by this instructor was the limited time available to "mentor" students. Class size also contributed to this problem. However, students were seen to need to be mentored as persons. It also was commented that formative evaluation of students' work was made difficult by a huge class size:

And that's a lot of students to evaluate, submit, reevaluate ... but if you believe in doing things that way, you have to do it. You can't just say "I'm sorry, it's inconvenient. It's inconvenient to be an emancipatory educator so I won't be".

The university library was described as "a huge constraint at this university and on the way students learn" due its limited available resources : "I don't think you can have good graduate programs without a strong library". The argument here was that graduate programs were essential for students to strive

for real excellence and not to consider a four-year program as the final level of possible education. Another major constraint identified was the little recognition teaching was awarded at the university from the administrative or political side in contrast to subject-related research.

I don't see any grants being given for teaching, you know, like major research grants given in the teaching area. I want to get a SSHRC grant for September... and I want a grant but pedagogically. I mean my research is pedagogic, but I know that I have to write this grant so that it does not sound pedagogic because I won't get it then. You know, I don't like deceit. But in order to do what I think needs to be done, I have to practise deceit, that's not my fault ... That I think are the constraints. Other than that, this is the best world for me to be in right now. That's where I feel I can do the most good.

Table 16 summarizes the key notions of this instructor's espoused theory. This study worked from the assumption that the development of critical thinking skills and self-direction in learning are implicit goals of higher education. In the initial proposal phase of this research project each of the four

Table 16

Espoused Theory of Instructor 01

Purpose of higher education	<ul style="list-style-type: none"> -learners should encounter rigorous challenges -the human dimension in higher education is seen as critical -universities are places where students learn how to learn (content as well as about themselves) -to create new knowledge, to practise social critique and social reconstruction -to make students understand concepts that underlie facts so that they can make the transfer to a different context
Role of the teacher	<ul style="list-style-type: none"> -"being the embodiment of the subject matter" -"being there for the students" -is seen to be able "to make a difference" -a mirror who helps students to see themselves

(table continues)

Role of the student	<ul style="list-style-type: none"> -learners come to the learning situation with lots of competencies and experiences -learners are generally assumed to be intelligent -they are unique individuals with unique personalities -there is a readiness to learn -student should learn to find learning something inherently valuable -they should have choices -they should learn to justify their grades
Strategies	<ul style="list-style-type: none"> -build in difficulty -develop evaluation criteria together with the students -providing "kicks and strokes" (support and challenge) -have them work in groups -the process should be part of the content -formative evaluation of students' work

Evaluation	<ul style="list-style-type: none">-students should have a sense of ownership in the evaluation-students are given choices (e.g., midterm exam or essay)-journal writing-development of evaluation criteria together with the students-students should not only know but also understand the criteria
Restraints	<ul style="list-style-type: none">-little recognition of teaching at university faculty from the administrative side-requirement to distribute prepackaged course outlines at the beginning of the term without allowing for student input-class size (problem for mentoring and formative evaluation)-poorly stacked library

participants was informed about the purpose, the research questions, variables and goals implied in the study. The fact that instructor 01 showed interest in the study and agreed to participate serves as an indication that, on an espoused level at least, she shares the view that critical thinking and self-direction are important goals of higher education. Through a more thorough exploration of the interview data on "philosophy of teaching" it became evident, that this instructor considers it a strong concern that students become critical thinkers and self-directed learners. One can speak of a high compatibility therefore between the implicit goals of education and this instructor's espoused theory.

During the repertory grid administration seven constructs were identified: "content vs. process", "helping vs. caring", "the group vs. the person", "guide vs. fellow traveller", "smooth vs. rough", "with you vs. for you", "duty vs. loyalty". Table 17 shows the instructor's constructs and ratings for each educator role (F=Facilitator, R=Resource person, Fd=Friend, P=Planner, E=Expert, I=Instructor, Me=Mentor, Mo=Model, Pt=Provocateur, Co=Co-learner):

The roles of expert and resource person were seen as almost the same and are just distinguished by the fourth and fifth construct. While they share most of the extreme ratings on the left side of the grid, emphasizing content, helping not caring, stressing the group not the individual, guide and not fellow-

Table 17

Constructions of Educator Roles for Instructor 01

Emergent Construct 7	F	R	Fd	P	E	I	Me	Mo	Pt	Co	Implicit Construct 1
content	4	7	2	1	7	7	2	4	5	3	process
helping	7	7	1	4	7	4	2	4	5	3	caring
group	4	7	1	3	7	6	1	7	5	3	person
guides	3	7	1	4	7	4	2	4	4	1	fellow traveller
smooth	7	7	2	7	4	4	2	3	1	4	rough
with you	3	2	1	4	7	3	7	1	5	7	for you
duty	7	6	1	7	6	6	7	7	5	3	loyalty

travellers, the resource person is seen as doing things "for you" while the expert is doing it "with you". Expert, then, is construed as more actively involved in the teaching-learning interaction than the resource person is. The expert also is seen as rather "rough" while the resource person is considered to be more "smooth". What is implied here is probably a sense of academic rigour that is advocated by the expert. Expert and friend are considered antithetical in terms of these self-elicited constructs. Mentor and friend share many ratings but are different in that the mentor is seen as doing things "with you" and doing her duty whereas the friend is doing it "for you" and out of loyalty. The instructor role, the term most teachers in higher education assign to themselves, is interpreted as emphasizing content at the expense of process, the group at the expense of the individual, and as doing his or her duty and not acting out of loyalty. This construction is similar to that of the role of the model; however the model is assigned a medium position on the continuum from content and process and on the continuum helping to caring. The model is also clearly seen as doing things "for you" and not "with you". The constructions of provocateur and co-learner are interesting. Although the ratings are not identical, it can be seen that the provocateur as well as the co-learner are conceived of as emphasizing content as well as process, as helping as well as caring, as seeing the group as well as the individual, and doing their duty as well as acting out of loyalty. However, the provocateur is construed as being "rough" whereas the co-learner received a moderate rating on this construct.

The co-learner also is interpreted as a fellow traveller and somebody who does things clearly "with you" instead of "for you". Planner and facilitator share many ratings, but the planner is clearly construed as emphasizing process and being concerned with helping as much as caring. Both facilitator and planner, however, are understood as not being "rough" but "smooth". Through the previous analysis of the interview data it became evident that this instructor believes that "building in difficulty" is a crucial component of teaching in higher education. Students should encounter "rigorous challenges" as far as the content but also as far as their personal development is concerned. At the same time, however, it was stated that "some may need a kick and others may need a stroke". As became evident during the interview, this instructor (01) believes that, depending on situational variables, educators need to act differently or assume different roles. Writing about various educator roles in the adult education context, Cranton (1992) made the point that educator roles could be divided into those who are other-directed, self-directed, or mutually directed learning. This implies that the role the educator assumes is closely related to the educator's personal theory of practice; that is, his or her self-defined aims and purpose of education, view of learners, etc. However, each educator role is described as being equally valid; the decision as to which role might be most appropriate in a certain learning situation needs to be the result of a thorough reflection process on the different variables interacting in a learning situation. The point advanced here is that the question as to "which role

educators should play" in certain situations needs to be treated with responsibility; roles should be chosen deliberately after thorough scrutiny and reflection on all variables (learner characteristics, teacher characteristics, subject characteristics, environmental variables, etc). From the grid discussed above, no educator role seems clearly favoured over all the others. From the interview data, however, it can be inferred that an educator role which favours the group to the expense of the individual, who helps without caring, who emphasizes content over process, who is smooth without ever being "rough", who merely follows his or her duties without expressing loyalty, who guides without ever being a fellow traveller, is not compatible with the instructor's views. The role of the expert and resource person may be described by these extremes. However, "being an expert" was even listed as one important strategy by this educator: "A solid and comprehensive grasp of the subject matter is one of the strategies I have to have." Since "some people need a kick while others need a stroke", an educator is also seen as having the responsibility to be challenging and provocative in some situations, but supportive in others. In this context it is of particular interest to point out that the mentor role which is high on caring is also described as being "rough" (provocative); this distinguishes the mentor from the role of the provocateur which is also construed as being "rough" but as less caring. This construction allows for the inference that the mentor is seen to be "rough" precisely because he cares about the individual, whereas the provocateur (as a role) is primarily

concerned with creating dissonance and rather inconsiderate about the consequences of this challenge. In conclusion it may be said that this instructor conceives of all these roles as equally valid in the higher education context since, depending on the situation, assuming a particular role is more appropriate than assuming another. It does clearly not align with this instructor's views to assume one educator role, or to work from one particular dimension or perspective, in all situations. This instructor would not say "I am a provocateur" or "I see myself mainly as a facilitator", or "I am a co-learner." In contrast to this, the instructor, when asked to describe herself said "I am a mirror. I hold up a mirror so that they can see themselves". Being a mirror implies giving feedback; it also implies challenge. However, in order to be a mirror which students will accept, there needs to be implied also the notion of caring, smoothness, and support. The repertory grid gives reason to speculate that this educator believes that each of the ten roles has its specific validity in a certain learning situation and that there is no one educator role that would capture the entirety of what it means to be an effective educator in higher education. This understanding is compatible with the interview data.

In order to see whether this understanding was also put into practice, the data from the teaching observation of this instructor's seminar (third-year undergraduate course in "social dance and partner dance") were examined. Table 18 introduces a selection of quotes from the narrative description of the teaching observation during the seminar. As was emphasized at the beginning

Table 18

Observed Teaching Behaviour of Instructor 01 in a three hour Dance Session

Teaching behaviour dimensions	Behaviour as described in the narrative description of the actual teaching observation
encouragement	<p>"Throughout this phase questions are invited."</p> <p>"She observes, listens to students' suggestions, and gives advice."</p> <p>"Shortly before break the instructor encourages the students: 'You should really be pleased. We are getting nice things happening here.'"</p> <p>"So do you want to try?' is the invitation sent to students."</p> <p>"The lecture is not really a lecture. Nothing is 'read to' students. Students and teacher are involved in dialogue. Questions are invited."</p> <p>"The instructor herself appears to be an athletic and energetic kind of person. The message that is conveyed, especially to physical education students, is "'Do what you preach. Be aware of your body'. She is certainly a good role model in this respect."</p>

(table continues)

support	<p>"She talks to the students in a very personable way."</p> <p>"I forget to thank the students for their participation. She does it for me. Herewith she demonstrates to the students that their participation in this study is not taken for granted."</p> <p>"If a student wanted to ask a question some minutes ago but has not raised it yet, she deliberately invites the person to make his or her point: 'Dave, you had a question?'"</p> <p>"During the performance phase the instructor is available for the students."</p> <p>"Interestingly the students are not blamed for not coming to class."</p> <p>"Nobody is ridiculed due to bad performance. As long as people seriously try, their efforts are acknowledged."</p> <p>"During break the instructor continues to be available for individual consultation with students."</p>
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(table continues)

communication	<p>"The professor and a group of students stand together. They seem to talk casually. The instructor seems to be completely involved in the conversation. At times one hears her laughing."</p> <p>"A handout clarifies the assignments for this course."</p> <p>"The instructor gives the students clear criteria as to how to analyze their journals."</p> <p>"the instructor makes her expectations explicit. The students receive clear responses regarding their questions."</p> <p>"Genuine levelling with the students is observable. This is promoted by appropriate use of language. The use of humour stands out as a particular characteristic."</p> <p>"If a student has a problem she provides explanation. She praises when performance is fine but also points out weaknesses."</p> <p>"The atmosphere is relaxed."</p> <p>"She sits in front of a student on a box, the student sits on a bench."</p>
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challenge	"The assignment is to write up an honest but critical analysis of one's own reflections."
participation	"The students are asked to keep a journal in this course." "The students have a lot of choices. Which steps or movements they choose to create their own dance is up to them."
direction	"At the end the class comes together once more. The content of the next session is delineated."

of this chapter, no attempt was being made to describe the instructor's behaviour as a whole, but rather, the analysis was done by filtrating the narrative description in terms of the six variables the study was primarily concerned with. The six categories in Table 18 reflect the six teaching behaviour dimensions addressed by the TBAS. Most of the data from the teaching observation could be identified as pertaining to the first three factors of encouragement, support, and open communication. Fewer quotes could be found for the latter three factors; however, the data could provide evidence for their existence. One should also take into consideration that "participation" is a concept underlying the whole course, even though only two quotes from the narrative could be related to this domain. Students' input in the evaluation process, their choices in terms of the assignments they would like to complete, or their choices during the class itself, are important components of the course. This involvement of students in decision- making processes such as the ones described above also involves the notion of challenge, since students are usually not used to this kind of "participation". However, the challenges addressed here pertain rather to the personal than to the academic domain. From the data of the observation itself it is not possible to specify one behavioural dimension that this instructor (01) is favouring or mainly working from. It is possible to say, however, that this instructor's teaching behaviour, as it was observed during the three-hour class, yielded evidence and support for all six dimensions of teaching behaviour addressed by the TBAS. Before the

students' perception of their instructor's teaching behaviour will be introduced, the major insights will be briefly recapitulated. First, the interview data with this instructor (01) could prove that there is a high degree of compatibility with her personal philosophy of teaching and the implicit goals of higher education (critical thinking and self-direction in students). Second, the construction of educator roles from the repertory grid aligned well with her expressed views during the interview. Third, the data from the teaching observation of this instructor's actual behaviour in class seemed again to illustrate a high degree of compatibility with the previous two sources of data. In conclusion it can be said, that there is evidence in the data which allows to argue that this instructor's "espoused theory" and her "theory-in-use" are in tune.

Table 19 introduces the students' perception of their instructor's teaching behaviour on each of the six scales rated on a five-point scale. The ratings on each factor ranged from 3.81 to 4.70, with support receiving the highest and participation, the lowest rating. However, all ratings can be considered high. It is interesting to note, however, that the obtained scores are higher for those three dimensions of teaching behaviour which found the most support through the qualitative data collected during the teaching observation. Small standard deviations ranging from .35 to .37 for these three ratings indicate that there is hardly any variation among the students' perception of their instructor's behaviour in these dimensions. The standard deviation for the other three factors is a little higher which shows that the students perceive their instructor's

Table 19

Means, Standard Deviation, Maximum and Minimum scores for each TBAS

Scale (N=25)

Variable	Mean	S.D.	Max	Min
Encouragement	4.46	.35	5.00	3.50
Support	4.70	.35	5.00	3.86
Communication	4.49	.37	5.00	3.67
Participation	3.81	.51	5.00	2.67
Challenge	4.04	.53	5.00	3.00
Direction	3.97	.53	4.75	2.75

behaviour on those dimensions differently. The scores for challenge ranged from 3.00 to 5.00. Although the minimum score is considerably lower than for the first three factors, all scores were on the positive end of the continuum, meaning that all students felt challenged by this instructor while some students felt more challenged than others. The lowest score for participation was 2.67 and the minimum score obtained for direction was 2.75. This indicates that some students did not conceive of their instructor as being participatory or directive. One possible reason for the variation in scores assigned to the participation, challenge, and direction domain may be due to personality characteristics such as psychological type.

Psychological type

Table 20 shows the instructor's (01) scores on each of the eight scales of the PET type test (ET=Extraverted Thinking, EF=Extraverted Feeling, ES=Extraverted Sensing, EN=Extraverted Intuition, IT=Introverted Thinking, IF=Introverted Feeling, IS=Introverted Sensing, IN=Introverted Intuition).

The highest score was obtained for extraverted intuition which can be considered this instructor's dominant function. Introverted feeling received the second highest score and can be regarded as the auxiliary function. It is interesting to note that although the dominant function shows a clear preference for extraversion, the other three functions (thinking, feeling, and sensing) scored higher on the introverted side. Making the assumption that teaching is an activity which requires considerable interaction with others; that is, requires

Table 20

Type Profile of Instructor 01

Variable	ET	EF	ES	EN	IT	IF	IS	IN
Instructor 01	30.00	20.00	30.00	63.33	40.00	46.67	43.33	23.33
Physical Education								

considerable extraversion on the part of the educator, one could infer from this type profile that this instructor works primarily from her extraverted intuition function in her teaching, while there may be a preference for introversion in other areas. This assumption is also based on interview data. During the individual meeting with the researcher which was used to share and discuss the various test results, the instructor commented: "I believe that this (extraverted intuition) is how I behave at work while I am much more introverted at home." It is also most interesting to see that those functions which received the lowest ratings are the direct opposite of the preferred functions. Extraverted feeling and introverted intuition seemed to be the least preferred functions. This aligns very well with Jung's (1971) view that a preference for extraversion is as different from a preference for introversion as a preference for thinking is different from a preference for feeling, or intuition from sensing. Describing the possibly preferred teaching style of the extraverted intuitive, Knoop and Cranton (1992) write (based on Jung's [1971] description of psychological types):

You bring great enthusiasm and intensity to a teaching situation. You are stimulated by new possibilities, new people, and are an initiator, promoter, and speculator. These preferences will lead you to an active, exciting, involved teaching style. You have the capacity to inspire courage and kindle enthusiasm in others; your style is "contagious"...

Your preferred teaching style is one of interaction with others and with ideas and possibilities. You will work best with advanced learners who

have experiences ... and ideas that they can bring to a learning situation. ...Having learners work in groups on problems or discussing ideas would suit you...Your potential weakness in your teaching style...is that you will quickly lose interest in the students who struggle with your ideas and who require repetitive explanations for their understanding. You do not enjoy rational communication.... This can be frustrating for the rational types among your learners...(p.5).

The instructor's expressed concern for "being the embodiment of the subject matter" so that students become excited about the subject, the concern for the development of creativity in learners, as well as her belief that learners do have experiences and ideas to contribute to the teaching-learning situation align well with this description of the preferred teaching behaviour of the "extraverted intuitive type".

As could be seen in the quantitative analysis, 25 students completed a type test. Three students shared a dominant intuitive function with the instructor. Fourteen students had a preference for extraverted sensing, four students had a dominant-extraverted feeling function, and the other four students were equally split into either extraverted or introverted "thinking types". Five students had extraverted intuition as their least developed function on the extraverted side. One student had extraverted intuition as the inferior function. It became evident that only 12% of the students shared the dominant function with the instructor. The majority of the group (56%) had a preference for

sensation. The variation in students' perception of their instructor's teaching behaviour on factors four, five and six may be partially explained by differences in psychological type.

This study was conducted on the basis of the assumption that a compatibility in personality characteristics between instructor and students is an important variable in the teaching-learning interaction. It was assumed that a compatibility in psychological type between instructor and students could be one of the variables conducive for enhancing understanding and communication among learners and instructor, and hence would have an impact on how the students perceive their instructor's teaching behaviour. Following this understanding it was further believed that this variable, students' perception of their instructor's teaching behaviour, will have a direct influence on learning outcomes, (here critical thinking and self-direction in learning). It was anticipated that a high degree of compatibility of psychological type between instructor and learners would be related to high SDLRS scores. In the foregoing analysis of quantitative data it was shown that the SDLRS scores for this group of learners ranged from 141 to 259, with a mean score of 211.28 and a standard deviation of 26.48. Thirteen students scored above the standardized mean score of 214 (Guglielmino, 1977), and eleven students scored below the mean. Six students received ratings of 230 or higher. Two of them had a dominant intuition function, three had a dominant sensing function, and one was an introverted thinking type. All these six students received a

score of 36.67 or better on extraverted intuition. Five students received a SDLRS score below 190. Two of them were extraverted thinking types, two were extraverted sensing types, and one was an extraverted intuitive. Three of these students received a score equal to or below 36.67 on extraverted intuition. One had a score of 43.33 and the other of 46.67 on extraverted intuition. There seemed to be no distinct relationship between extraverted intuition (instructor's 01 preference) and SDLRS scores even though, overall, there was a relationship between SDLRS and EN. The assumption that compatibility in terms of psychological type between students and instructor is related to students' self-direction in learning did not find sufficient support through the data, since one of the three extraverted intuitives scored below 190 on the SDLRS. Although it still seems worthwhile noting that all the six students who received a score of 230 or better shared a strong extraverted intuition function, no clear-cut conclusions can be drawn from these data.

In the previous analysis it could be shown that this instructor's teaching philosophy and actual teaching behaviour were in tune and showed a high degree of compatibility with the espoused beliefs that self-direction in learning and critical thinking are important goals in higher education. In conclusion, one could speculate that this instructor had a high potential to exert influence, particularly on the three extraverted intuitive students but also on those students who shared a strong extraverted intuitive function. The assumption here is that those students who shared a strong extraverted intuition function

with the instructor felt more comfortable with this instructor's preferred teaching style than those who received only low scores on extraverted intuition.

However, since some of the students who scored low on the SDLRS also received a relatively high score on intuition it is not justifiable to speak of a direct relationship between compatibility of instructor and student type and SDLRS scores. Other unidentified variables might also have contributed to the SDLRS scores (e.g., time of data collection [evening]).

Locus of Control

This instructor (01) received a score of 45 on the LOCSFT. Since the possible scores range from 23 (strong internal) to 96 (strong external), a score of 45 reflects a moderately internal locus of control orientation. Since the instrument has not been standardized, some of the items this instructor responded to most strongly will be introduced. The instructor identified with the item:

"The way I approach students makes a difference in how they respond to me."

The instructor most strongly disagreed with the following items:

"I think that effective teaching is mostly a gamble."

"I feel that I have little influence over how much students learn."

"Some students seem born to fail whereas others seem to be born for success, no matter how the material is presented to them."

"It's difficult for teachers to have much impact on how much and how

well students will learn in a course."

"As teachers we have to face the reality: 'The interested student will learn and be successful in the exams and the uninterested won't - there is not much you can do about it'."

The other items on the LOCSFT received scores of 2 and 3.

As was outlined in Chapter Three, three hypotheses were examined. First it was investigated whether locus of control and teaching behaviour in the two domains, encouragement and participation, were related. Instructor (01) received a high mean score of 4.46 on encouragement and a score of 3.81 on participation. These results provide some support (keeping in mind that a LOCSFT score of 45 only reflects a moderately internal orientation) for the hypothesis that internal locus of control orientation in teachers is related to high student ratings on these two dimensions of teaching behaviour. Second, it was hypothesized that a high degree of compatibility between espoused theory of practice and actual theory-in-use were related to internal locus of control orientation in teachers. As the previous analysis may show, no incongruence between espoused beliefs and the beliefs and values which guide the instructor in her classroom practice could be identified. Hypothesis two, therefore, seems to be confirmed. Thirdly, it was hypothesized that high SDLRS scores of students were related to internal locus of control orientation in teachers. As was illustrated above, the SDLRS scores for this group of students ranged from 141 to 259 with a mean score of 211.28 and a standard deviation of 26.48.

This mean score lies somewhat below the mean score of 214 that Guglielmino (1977) identified in her study. Hypothesis three, therefore, could not be confirmed.

At this point it is interesting to note that when the instructor returned the LOCSFT to the researcher, she indicated that she could not identify with the wording of some of the items. Particular difficulty was experienced for items 12, 20, and 21 because of the repeated wording "I know that...". It could be argued therefore that if the wording of some of the items had been changed to "I assume" or "I believe" (which would have not changed the meaning of the items as such), a much stronger internal locus of control orientation could have been identified. This would have provided more support to hypotheses one and two, and would have further called into question hypothesis three, since a mean score of 211.28 is not particularly high. However, in Chapter Three the argument was forwarded that research on Rotter's Locus of Control Scale, the most widely used instrument to assess people's control orientation, indicated that it is affected by social desirability response bias (MacDonald, 1973), and that this is likely to be the case also for the LOCSFT. For this reason these results need to be treated with caution.

Philosophy of Teaching of Instructor 02 (Classics)

Purpose of higher education. For instructor 02 the primary purpose of higher education was seen to be the "transmission of traditionals" in contrast to the purpose of primary and secondary education which was seen to be dealing

more with "moulding character and that sort of thing". University education was considered more "content-oriented." Universities were regarded as a step towards a profession, a career, or vocation, by "conveying a body of knowledge whereto it is supposed that an educated person in this particular area should know". In terms of Classics, the purpose of higher education was seen to be stimulating interest in the subject matter, so that the students become involved in what they are doing.

Well, perhaps because I'm a Classicist I see the transmission of traditionals as very important. Especially in the modern world where the university is probably the sole or one of very few avenues for, let's say, the introduction to classical culture or many aspects of our Western civilization ... probably in this sense I'm more traditional than a lot of teachers. I think it has something to do with the subject matter.

The role of the teacher. The role of the teacher was defined as "showing the relevance of and the possibilities involved in the subject matter", "giving them an idea what the subject is all about and where to pursue it themselves", and "trying to relate this subject matter to what they have already done and to what they might do in the future". The role of teacher also was seen to be providing some "degree of academic counselling" since students "quite often do not know simple academic things like where the library is, how to get books from the library, what they are expected to do in an essay". It was also considered important "not to teach to the lowest common denominator" but

rather to provide opportunities for the students to go further than what is actually taught in the classroom or will be tested in the exam.

Showing the relevance of the subject matter; trying to relate that subject matter to what they have already done and to what they might do in the future. And also, giving them an idea fairly quickly of what the subject is about...

And you add a few things just to stimulate interest, I may show a few slides, which I always do, because I think you should get some idea of the artistic significance of classics, but I won't test them on that...

The role of the student. The majority of students were considered to be looking for a "cheap credit course" without being too much interested in the content. "If you try to teach more than the students think they need to learn in this particular course, particularly if it is an elective, they don't like it too much. I don't think it is quite as true in major courses because they are trying to make a good impression on the instructor". The students were described as generally not having "a really strong academic background. Students stay in the low B range, a lot of them would not go to a strictly academic school...". In this instructor's view education is something not intrinsically valued by most students. "For many students education is rather a negative thing, something you have to go through in order to get a decent job". The role of the student is basically seen to be complying with certain restraints, that is, doing what is expected or necessary to pass a course. It was acknowledged though that

there are exceptions, especially those people who, due to their family background, have a different sense for literature and knowledge, and those students who did poorly in high school and therefore have not yet adapted the patterns that get one smoothly through the system. The typical role of the student was described as "looking towards a degree" and "probably not immediately looking beyond that". "Many people come to university because it is a better place to socialize than the work force or the community college". In large classes the role of the student was described as the "audience"; it was acknowledged that this was a very passive role. The other role "we would expect humanities students to assume is the role of the researcher". The role expected of the students in the seminars was described as follows:

They have to read the given reading, which is mainly a chapter in the text, they have to know this well enough to be able to deal with some fairly simple questions, informational questions, for the most part, and also I expect them to put it together and to be able to generalize from the information in depth. So basically there is simple informational questions "who was who, what did he do?" There is also the kind of question "What is the significance of Zeus ...", so you are starting them off at the informational level and then see whether they will be able to draw parallels and see patterns.

Strategies. Both seminars and lectures were considered essential. The instructor regarded it important to involve students in the seminars in

discussions. It was pointed out that in the seminars people mainly work in small groups and try to answer certain questions provided by the instructor.

The groups are formed by the instructor as well. "I usually break them down in small groups so that they see the people sitting beside them and work on their names so that they can feel some rapport with their fellow students as well as with their instructor. Otherwise I would think all the focus is on the instructor."

When the researcher pointed out that she had the impression during the teaching observation that the focus was still on the instructor and that the students did not seem to interact with each other the instructor replied: "It might be better to have fewer questions and more discussion. However, I do not tend to do that because this course is very content- oriented. That's the nature of the course. There is a huge body of Greek mythology, the text is nearly seven hundred pages...". Seminars are used "as a study of the text". In terms of the lectures, the instructor commented: "I tend to use my own lectures as kind of background to provide an overview of material and to make these connections. You know in there we try to connect between big myths, Greek and Macedonian myths...to show that this is much wider patterned, and that it relates to a whole variety of societies, not just to Greek society. And how it relates to Greek society in different periods too, not just one period but it continues to change...".

To have students simultaneously hear and see the information was stressed particularly for the lecture. Overhead projectors and slides were used

frequently. "The main point of the slide lecture, I think, is to give them actual images of actual artifacts so to speak, how we can see this interest in the societies themselves". The slide lecture is also considered essential in the sense that it points to the fact that all that is known about ancient cultures today has only been made possible through archaeology. The first-year course was described as "a package course" where the students are provided with general background information. It was interesting how much emphasis this instructor put on the choice of the text for this course. The text used in the course should be "challenging", should be a "university text and not talk down to students". At the same he added "what I find is that the students tend not to read the more challenging text when I use two texts. They use the easy one because they know they won't get tested verbatim on it". Being asked whether he tried to stimulate some interest in the more challenging text in the students, for example by sharing his own experiences while reading through it, etc., he commented: "I will usually say in some detail what they are required to do and how the textbook ties into that...", "I do keep referring to the text...I talk about the elements of the text, like there is a good index with good explanations and pronunciations, there are bibliographies ...".

Partly because Classics is a bit removed from the way we normally perceive things, you try and make some connection. By providing various textbooks, economic myths, or a couple of chapters on the continuity of myths, how it effects modern literature and culture, and by

providing modern interpretations of myths, or psychological interpretations of myths; so the textbook itself tries to tie in with twentieth-century culture.

Evaluation. The final exam was given most emphasis. "By the time of the final exam they should be able to bring it all together in their heads...". "I gave them a breakdown of what I expect fairly early on. And the midterm is the same format. But the midterm is only worth ten percent. The final is worth 40, the essay 30, and 20 for their attendance and verbal participation in the seminars." Being asked whether evaluating students would involve problems or whether it was something that he could handle fairly smoothly, he commented:

I think for the most part it is fairly smooth. I think the biggest problems are probably essays. Particularly with a course like this when the students come from so many different areas. Well, in humanities you tend to evaluate certain things, but then with fourth-year students from science or social science who have a different background it's hard to evaluate what kind of an effort they have been putting into it. Sometimes you allow them to put less effort into them though the final product is not what you like.

Although the instructor recognized the different backgrounds of the students in his course, this had no impact on his actual approach to evaluation. It was still him who decided on the criteria by which the students' works were judged.

Restraints. The restraints identified by this instructor pertained to the offering of half courses during the spring and summer periods. The amount of material that needs to be covered in too short a time frame, the number of administrative requirements one has to comply with as an instructor, as well as class size were identified as the key issues.

Because in the spring or summer you only have three or five weeks for a half course. There is all this paper work involved and it is as much as you have to do for four months. But it really cuts into the teaching time and it is often quite unnecessary from an educational point of view. It is counterproductive, because you are not getting to build up on a subject.....Also sometimes class size can be a problem. Pushing seminars to 20 or 22 students also means that individual students don't have as much time to talk. I can't say that on the whole I am too upset with how things go...

Table 21 summarizes the key notions of this instructor's espoused theory. This study worked from the assumption that the development of critical thinking skills and self-direction in learning are implicit goals of higher education. In the initial proposal phase of this research project each of the four participants was informed about the purpose, the research questions, variables and goals implied in the study. The fact that instructor 02 showed interest in the study and agreed to participate serves as an indication that, on an espoused level at least, he shares the view that critical thinking and self-

direction are important goals of higher education. In the interview on "philosophy of teaching" the instructor expressed only very moderate concern for these goals. At this point it needs to be stressed once again that the instructor was deliberately not asked directly whether he viewed self-directedness in learning and critical thinking as important goals in higher education, but that the six interview questions were chosen so as to require the instructor to identify the goals of higher education himself.

It is interesting to see that this instructor seems to conceive of his students as the direct opposite of what he values. Whereas he sees the goal of education as being the stimulation of interest in the subject matter, he conceives of the students as "generally not too much interested in the subject matter" and believes that "the majority of students do what is expected in order

Table 21

Espoused Theory of Instructor 02

Purpose of education	<ul style="list-style-type: none">-the transmission of traditionals-to stimulate interest in the subject matter-to provide the necessary subject-specific information the students need to later be successful in their profession
Role of the teacher	<ul style="list-style-type: none">-to transmit content-to cover a huge amount of material-to stimulate interest in the subject matter-to relate the subject matter to previously acquired knowledge-to provide some degree of "academic counselling" in terms of university requirements-to show the relevance of the subject matter, to draw parallels or transferences to our century

(table continues)

Role of the student	<ul style="list-style-type: none">-they need to be involved in discussions in the seminars-they are researchers when writing their essays-they are the audience in the lecture (due to large classes)-the majority of students do what is expected in order to comply with the requirements for passing the course-students are generally not too much interested in the subject matter-students are looking toward a degree, not much beyond that-they primarily choose university because it entails better prospects and more fun (social domain) than an apprenticeship program or community college
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(table continues)

Strategies used	<ul style="list-style-type: none"> -lectures and seminars are essential -illustrating how the subject matter relates to the present time -combining lectures with the use of visual aids (overheads and slides) -providing a broad overview over the subject matter through the lecture; to transmit a "package of knowledge" -applying group work in seminars; letting students study the text and letting them respond to questions set by the instructor -selecting "challenging" texts
View of evaluation	<ul style="list-style-type: none"> -criteria and procedures determined by the instructor -no student input -final exam was emphasized in the evaluation procedure (midterm 10%, final 40%, essay 30%) -students are also evaluated for verbal participation (attendance and participation each 10%) -evaluation was basically considered as non-problematic

(table continues)

Restraints identified	<ul style="list-style-type: none">-too much unnecessary paper work for half-credit course in the spring or summer period-seminars too big in the spring and summer period-too much content; no possibility to do anything in depth
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to comply with the requirements for passing the course." A lack of trust in the learner is apparent. Educators working from a humanist perspective however, usually emphasize the significance of genuine trust in the abilities of the learner (cf. Brookfield, 1986; Cranton, 1992; Freire, 1970; Knowles, 1984; Novak, 1992; Rogers, 1969) as a prerequisite for successful student learning. This lack of trust also may be the reason why the instructor determines all the criteria and procedures for evaluation, a notion not compatible with a concern for self-directed learning. It also becomes evident that the amount of material to be covered determines the strategy used (as there is extensive content there needs to be less discussion). "Covering material" is clearly antithetical to the fostering of critical thinking and implies a sense of low-level learning. One of the restraints identified by this instructor was that the spring and summer courses were too short to deal with any content more deeply. It seems that the instructor himself is interested in the subject matter and enjoys dealing with it in more depth; however, in his role as an educator he sees the more valuable or meaningful task to be one of transmitting a body of content and not a more thorough investigation of a few selected topics. However, his expressed concern for involving students in discussions and helping them to make transfers to our century does indicate some moderate concern for critical thinking and self-direction. Whereas this instructor "generally" agrees with the view that self-direction in learning and critical thinking are important goals in higher education, this seems to be an espoused view which shows only limited

congruence with the interview data.

During the repertory grid administration six constructs were identified: "Involves learning vs. being more static", "expert vs. motivator", "traditional teacher vs. coach or resource person", "teaches without being a learner vs. teaches while being a learner", "designer of a course vs. working from the behavioural paradigm", and "is a source of information vs. challenges assumptions". The most interesting and significant construct elicited by this instructor is probably the one of "expert vs. motivator" and the ratings of the various educator roles along this construct.

Table 22 shows the instructor's (02) constructs and ratings for each educator role (F=Facilitator, R=Resource person, Fd=Friend, P=Planner, E=Expert, I=Instructor, Me=Mentor, Mo=Model, Pt=Provocateur, Co=Co-Learner). The role of the expert is interpreted as almost antithetical to the role of provocateur, facilitator, and friend. It is interesting to see that the provocateur and the facilitator are recognized as challenging assumptions but doing so without having considerable expertise. They are coaches and "resource persons" (the question could be forwarded how one can be a resource person without having expertise but it is possible that this construct emphasized the coaching component more) but are not seen as having a strong concern for modelling behaviours. The instructor role shares many similarities with the expert. The only difference is seen in the fact that the instructor is also involved in learning whereas the expert is not. In this context it is interesting to have a closer look

Table 22

Constructions of Educator Roles for Instructor 02

Emergent Construct 7	F	R	Fd	P	E	I	Me	Mo	Pt	Co	Implicit Construct 1
involves learning	4	4	2	5	2	7	4	1	3	7	is more static
expert	2	7	2	5	6	6	4	7	1	3	motivator
traditional teacher	1	1	2	5	6	7	7	6	3	2	coach/resource person
teaches without being a learner	3	3	2	5	7	6	7	7	5	1	teaches while being a student
designer of a course	5	5	4	7	7	5	3	1	5	4	behavioural paradigm
is a source of information	3	5	4	6	7	7	7	7	1	3	challenges assumptions

at constructs one and four. What seems to be a direct contradiction at first sight, (the instructor role was assigned a high rating for being involved in learning on the first and a low rating for being involved in learning on the fourth construct), may have its explanation in this instructor's understanding of himself as the "expert" when he is among his students but not necessarily among other academics in his field. Interesting that the expert is construed as "static" that is, as a person who has "finished" learning. This instructor seems to conceive of himself as a learner in a sense that he continually has to broaden his knowledge base in his particular area of study (Classics), since each new course requires considerable preparation and "learning" also on the part of the instructor (first construct). However, as soon as he is with his students, in other words, as soon as he is involved in teaching (fourth construct), his understanding of himself as a student vanishes and he considers himself as the expert in this particular course, whose role is to transmit a body of knowledge by sharing his expertise. There is also an understanding implied in this construct that "teaching" itself is not an area about which one can learn more. The first major insight that can be drawn from the grid is therefore that this instructor does not see his role as being a co-learner among his students, nor does it occur to him to understand his own teaching as an "area of experiential study" where he is involved in learning how to teach better. The instructor role is similarly construed as the planner role. The main difference between the instructor and the model is again seen along the first construct (the model is

construed as static), whereas the model is also interpreted as being more concerned with modelling certain behaviours and less with designing courses. To this instructor, facilitator and resource person are distinguished only by the understanding that the facilitator is not an expert. Only the resource person is construed as being an expert and to simultaneously be involved in a process of learning while teaching. In contrast to the facilitator, the resource person does not challenge assumptions. The second major insight that might be drawn from this grid in terms of the instructor's teaching philosophy is that those people whose primary concern is to challenge assumptions, do this without having much expertise or knowledge or do it primarily in order to motivate others. It is also apparent that the two constructs "teaches without being a learner vs. teaches while being a learner" and "traditional teacher vs. coach or resource person" are related. The traditional teacher is a teacher who is not involved in learning and the coach or resource person is involved in learning while teaching. In the interview, the instructor described the role of the teacher as transmitting content, stimulating interest in the subject matter, relating the subject matter to previously acquired knowledge, providing some degree of "academic counselling" in terms of university requirements, and showing the relevance of the subject matter by drawing parallels or transferences to our century. This "traditional" view of education fits very well with his construction of the role of instructor, expert, and planner. However, this instructor thinks that a part of his job is also to stimulate interest, or in other words, to motivate

learners. The three educator roles, instructor, planner, and expert, however, received fairly low ratings on motivation. This could be interpreted as a discrepancy between the instructor's espoused theory and his theory-in-use. As was pointed out earlier it is apparent that this instructor does not believe that the students are genuinely interested in the subject but rather, that the majority of the students take the course because they consider it an opportunity to obtain a "cheap" credit. A consequence of this belief might be some degree of frustration on the part of the instructor so that he, unconsciously, does not truly believe in the value of trying to motivate his students. It also could be that the very idea of being a "motivator" does not harmonize with this instructor's personality characteristics. This question will be picked up again in the section on psychological type. At this point it is helpful to examine the data from the instructor's actual behaviour in class.

Table 23 introduces some quotes from the narrative description of the teaching observation during the seminar. As it was emphasized in the beginning of this chapter, no attempt was being made to describe the instructor's behaviour during this session as a whole, but rather, the analysis was done by filtrating the narrative description in terms of the six variables the study was primarily concerned with. As in the foregoing example, the categories reflect the six teaching behaviour dimensions as addressed by the TBAS. No behaviour could be identified that pertains to the participatory domain (note that student participation in class is not what is captured by the

Table 23

Observed Teaching Behaviour of Instructor 02 in a one hour Classics Seminar

Teaching behaviour dimensions	Actual teaching behaviour as described in the narrative description of the teaching observation
encouragement	"Somebody points to some contradiction in the literature regarding certain happenings and/or phenomena. The instructor agrees and confirms that there are indeed a lot of ambiguities and contradictions in the literature and comments: 'If there were no contradictions you would not have much of a story'."
support	"The instructor challenges them a lot, asks a lot of questions. Support and acknowledgement of students' contributions is lower".

(table continues)

open communication	<p>"The instructor enters the room. He takes a seat near to the door at the top row of the square. His desk is slightly moved up, detached, from the desk left to him where two other students sit. The seat to the right is empty."</p> <p>"The instructor divides the class into small groups. The students seem to be familiar with this method".</p> <p>"During the group work he is readily available for consultation. One group which asked for clarification in regard to a certain problem is joined for a couple of minutes. The instructor shares his expertise and the issue is clarified. It seems evident that the students talk directly to the instructor. Except for the group work in the beginning, they do not really interact with each other."</p> <p>"'Anything more about question one?' he asks. Then, he gives some information himself. He is very comfortable and speaks calmly. He asks many questions: 'What else did he do? He did do something else?' Many questions address particulars - they are not open but have one particular answer."</p> <p>"However, some individuals do contribute or elaborate on what students from the other groups have said."</p>
challenge	<p>"However, there are also questions of a different nature: 'In what way does this relate to what we have just said?'"</p> <p>"When another student responds to a question his group has discussed, the instructor challenges him: 'Why is this significant?'"</p>

(table continues)

participation	None.
direction	<p>"Today we will do something differently. Carolin will videotape us. Because she does a study on critical thinking. Later she will collect some data ...'. After the data collection issue is clarified the instructor divides the class into small groups."</p> <p>"The students should stay in the groups for twenty minutes. A clear time limit is given: 'Two more minutes please'."</p> <p>"It seems that he talks far more than the students, even though the students are the ones who answer the questions first. Each answer elicited by the students is further elaborated on. All students have to contribute something. He starts out with the first group and the first question, then the second group and their questions ... There is no deviation from this agenda. 'Okay, next question.'"</p> <p>"Throughout the seminar the instructor makes checkmarks for student participation".</p>

variable "participation" as addressed by the TBAS; for factor definition see Chapter Three). Most of the data could be related to the category "open communication", but it became evident that open communication is partially distorted. As was already pointed out in the analysis of the interview data, the teaching observation data could show that there was some discrepancy between the instructor's view of his teaching strategy and what actually happened in the classroom. Whereas the primary purpose of education was seen in "involving students in discussions", the data from the teaching observation illustrate that not much discussion is actually going on among the students, but that the prevailing interaction is one from individual student to the instructor. The data seem to stress the "challenge" domain in the sense that the instructor asks a lot of questions which may lead the students to think more critically about certain issues. However, it cannot be inferred from the data whether the students perceive these questions as challenging. The questions themselves also seem to aim rather at an academically more correct answer than at creativity or problem-solving. Only a smaller part of the data could be related to the encouragement and support domains. The repertory grid exercise showed that this instructor (02) conceives of himself most likely as a combination of an instructor, planner, and expert. Implied in these roles is a sense of "direction". As can be seen in the Table 23, the direction domain received considerable support through the data from the teaching observation.

Before the students' perceptions of their instructor's teaching behaviour will be introduced and related to the findings from the qualitative analysis, the major insights and assumptions arrived at through the analysis of the interview, repertory grid, and teaching observation data will be briefly summarized. First, it seems that this instructor's (02) behaviour is primarily directive. There seems to be some concern expressed for challenging students, although the "challenge" seems to lie in providing the answer (which he knows already) that is academically more correct. None of the data could be identified as pertaining to the participation domain. Not much concern was expressed for support and encouragement. Most of the data are related to the category "open communication", even though in a negative way since it became evident that not much discussion was encouraged among students. These findings fit well with the educator roles of instructor, planner, and expert with which this instructor (02) seems to identify most. Although the instructor mentioned in the interview that he saw his role also as stimulating interest in students, none of the data provided direct support for this statement. As was pointed out earlier, his assumptions about the students, "they are generally not interested in the subject matter", is a clear contradiction to the previous statement. This belief probably enhances his view of himself as the expert and of the students as the ones who are not only "not interested in the subject" but who also do not *know* anything about the subject. Discussions may not seem meaningful to him because the students do not seem to have the necessary background

information. It might also be that his lack of trust in the students is the other motive for not having a lot of discussion, as the students' objective is assumed to be "getting through an easy course". His primary concern seems to be to cover as much material as possible, in order to transmit to the students what he believes they need to know about the subject. This lack of trust may also prevent him from involving the students more in decision-making and may be a reason why none of the data from the teaching observation could be identified as pertaining to the participation domain.

Table 24 introduces the students' perception of their instructor's teaching behaviour on each of the six scales rated on a five-point scale. The high rating on direction and the low rating on participation support the conclusions arrived at through the analyses of the qualitative data. The low rating on encouragement was expected and it is also in tune with the data from the teaching observation. It is interesting to see that communication received the second highest rating whereas the qualitative data could show that open communication was partially distorted since there was no real concern expressed to encourage discussion among students. However, the factor "open communication" is assessed by six TBAS items, three of them being: "The instructor gives clear guidelines for evaluation", "the instructor sets clear criteria for student assignments" and "the instructor sets his or her expectations as to how students' work should be conducted". Since these items assess whether the instructor openly communicates his expectations, a rating of 3.6 on open

Table 24

Means, Standard Deviation, Maximum and Minimum scores for each TBAS

Scale (N=49)

Variable	Standard		Maximum	Minimum
	Mean	Deviation		
Encouragement	2.9	.67	4.3	1.6
Support	3.5	.63	5.0	1.7
Communication	3.6	.69	4.8	2.0
Challenge	3.0	.77	4.6	1.3
Participation	2.7	.65	4.2	1.0
Direction	4.4	.53	5.0	3.0

communication might be explained by high ratings on these items but not on all the items pertaining to that factor. A rating of 3.5 on support is higher than expected. With scores ranging from 1.7 to 5.0, this factor shows the highest variation in the scores assigned by the students. It is also interesting to see that the students gave their instructor an average rating of 3.0 on the challenge domain. The high standard deviation of .77 indicates that there is some deviation among students' ratings on this variable. A part of the group does not seem to feel challenged by this instructor. One possible reason for the variation in scores assigned to the support and challenge domain may be due to personality characteristics such as psychological type.

Psychological Type

Table 25 shows the instructor's (02) scores on each of the eight scales of the PET type test (ET=Extraverted Thinking, EF=Extraverted Feeling, ES=Extraverted Sensing, EN=Extraverted Intuition, IT=Introverted Thinking, IF=Introverted Feeling, IS=Introverted Sensing, IN=Introverted Intuition). The highest score was obtained for introverted thinking which can be considered this instructor's dominant function. Introverted intuition also received a high score and can be regarded as his auxiliary function. The low scores on extraverted (and introverted) feeling identify this function as the instructor's inferior function. Describing the possible preferred teaching style of the introverted thinking type, Knoop and Cranton (1992) write (based on Jung's [1971] description of psychological types):

Table 25

Type Profile of Instructor 02

Variable	ET	EF	ES	EN	IT	IF	IS	IN
Instructor 02 (Classics)	50.00	20.00	30.00	36.67	66.67	23.33	26.67	43.33

In teaching situations where the emphasis is on the creation, integration, or organization of theories and ideas, your style will be appropriate and effective....Your interest in teaching is in the material itself, the process of teaching has, at bottom, no interest unless it provides you with a theoretical problem....You prefer as a teacher to be directive, organized, and instructor-centered. You expect others to "bow to the truth of your ideas" and get annoyed when your ideas do not "thrive on their own". You do not go out of your way to win anyone's appreciation, including that of your learners. ...You may not realize that what is clear to you is not clear to everyone. ...You have difficulty being patient with others' discussions, particularly when they involve others' feelings or external facts that do not fit with your ideas ... (p.3).

The instructor's emphasis on content and his high task-orientation; that is, his highly directive teaching style and the limited opportunity offered for discussion with and among students, fit well with this description of the preferred teaching style of the "introverted thinking type". In this context it is also interesting to reconsider the instructor's expressed concern that the purpose of higher education is "to stimulate interest in the subject matter". However, it became evident through the repertory grid data, the data from the teaching observation, as well as through the score on the encouragement scale of the TBAS assigned to by the students, that the instructor was not actively

involved in inspiring or motivating students. Drawing on the description of the introverted thinking type teacher as quoted above, it may be speculated that this discrepancy between "espoused theory" and "theory-in-use" might have its explanation partially in the psychological type of the instructor.

As could be seen in the quantitative data analysis, 49 students completed a type test. Five students shared a dominant introverted thinking function with the instructor. Another four students had a dominant extraverted thinking function. Another 29 students shared a strong thinking function (above a PET score of 37), either extraverted or introverted, with the instructor, although it was not their dominant preference. There were 18 extraverted intuitives. Thirteen additional students shared a strong intuitive function (above a PET score of 37), either extraverted or introverted, with the instructor, although it was not their preference. Twenty-two students were either extraverted or introverted sensing or feeling types. Although there seems to be some compatibility in psychological type among students and instructor it needs to be emphasized that only five students (ten percent) of the class shared the instructor's preferred function.

Since the data from the teaching observation of the lecture group were missing, the previous analysis of the instructor's teaching behaviour was done only with data from the seminar group. For this reason, the analysis of psychological type of students will be done separately for the seminar group as well. Nine of the total of 49 students who attended the lecture during which

the quantitative data were collected also took the seminar with the instructor. Four of the nine students had a dominant extraverted intuition function, one had an extraverted and two had an introverted thinking function. There was also one student with a dominant extraverted sensing function, while introverted thinking was second, and one student who was strong but undifferentiated with feeling and thinking. Although it is interesting to see that all students shared a thinking or intuitive function, either as their dominant or their auxiliary function with the instructor, there were only two students who shared the preferred function with the instructor.

This study was conducted on the basis of the assumption that a compatibility in personality characteristics between instructor and students is a crucial factor in the teaching-learning interaction. It was assumed that a compatibility in psychological type of instructor and students could be one of the variables that is conducive in enhancing understanding and communication between learners and instructor, and thus would have an impact on how the students perceive the teaching behaviour of their instructor. Continuing this argument, it was assumed that this variable, students' perceptions of their instructor's teaching behaviour, would have a direct influence on learning outcome, here critical thinking and self-directedness in learning. It was expected therefore, that a high degree of compatibility in type between instructor and students would be related to high SDLRS scores. As could be seen in the quantitative analysis, the SDLRS scores for the total group of

students (49 students) ranged from 171 to 259. For the seminar group the scores ranged from 183 to 245 with a mean score of 217.10. Six out of the nine students from the seminar group received a SDLRS score above the standardized mean of 214 (Guglielmino, 1977). Four scored above 230. The three students who scored below the mean were the two introverted thinking types and one of the extraverted intuitives. The ones that scored the highest (243 and 245) were both extraverted intuitives. These results seem to indicate that there is no relationship between SDLRS scores and learner-instructor compatibility of psychological type. However, at the same time it needs to be stressed that self-directedness in learning was considered a goal of higher education and a possible learning outcome by the researcher but not necessarily by the instructor who participated in the study. It is still possible that compatibility of psychological type between instructor and students and students' development along the educator's defined and declared goals or objectives are related. One could argue that students whose type profiles show similarities to that of their instructor, here basically all the students from the seminar group, are more likely to see him or her as a model or mentor (Cranton, 1992), and hence, are more likely to be open for influence exerted by the instructor, which is likely to result in a high degree of acceptance of and development towards the instructor's defined learning objective.

Only five students were identified as introverted thinking types. However, the majority of the students in the lecture group shared either a

strong thinking or a strong intuition function with the instructor. Twenty-two students were either sensing or feeling types, which is the instructor's opposite. One could speculate therefore that only a minority of the students felt comfortable with the instructor's preferred teaching style. The remaining students could be divided up into two groups those who could relate to certain aspects of his teaching; and those who could not relate to this teaching style at all since they were of opposite type. The high deviation in the scores assigned to the challenge and support domain may have its explanation in the psychological type of students and instructor. In conclusion it can be argued that, first, this instructor's directive teaching style with its emphasis on content and little time allocated for discussions with and among students may be partially explained by his psychological type. Second, this instructor has only little to moderate potential to exert influence on his group of learners because only few students share their dominant function with the instructor. Since more than half of the students could be identified as having a strong thinking or intuition function, although it is not their preference, one can still speak of moderate compatibility in terms of psychological type. However, a large proportion of the group yielded type profiles which were opposite to the instructor. Third, Jung (1971) describes the introverted thinking type as "not going out to win anybody's appreciation". From this statement, it could be inferred that the introverted thinking type teacher would be less likely to exert influence on students in general (because he is more involved in the subject

matter and less interested in the students). Talking about the mentor role in education, a role which implies strongly the notion of exerting influence on students, Cranton (1992), however, ventures to speculate: "The introverted thinking type educator may well be the perfect mentor for an introverted thinking or introverted intuitive learner, but not for his or her opposite, an extraverted feeling type learner" (p.9). Whether this hypothesis holds true needs to be explored through further research. Fourth, were his espoused philosophy of teaching and his actual philosophy of practice in tune; that is, had he stimulated more interest in the subject matter through involving students in discussion (he would have had to change his assumptions that the students were generally not interested in the course) this might have resulted in a higher rating on the encouragement and challenge scales. It could be also true, however, that the high deviation in the ratings is due to variation in psychological type among the students who rated the instructor.

Locus of control

The instructor (02) received a score of 54 on the LOCSFT. Since the possible scores range from 23 (strong internal) to 92 (strong external), a score of 54 reflects neither an internal nor an external locus of control orientation. Although the questionnaire items were rated on a scale from one to four, the instructor avoided the extreme scores (1 and 4). Some of the items the instructor could (moderately) identify with were: "Some students seem born to fail whereas others seem to be born for success, no matter how the material is

presented to them", "As teachers we have to face the reality: 'The interested student will learn and be successful in the exams and the uninterested won't - there is not much you can do about it'", "I have usually found that regardless of what I do there are always some people who do poorly in the exams", "Many times I think that I have little influence over the learning of my students", "unfortunately there are students with whom you simply cannot connect", "The great range of learning styles, intelligence and psychological characteristics of students make it impossible to teach in a way that suits them all"; however, this instructor expressed also moderate agreement with the following LOCSFT items: "There is always a way to teach a particular student", "If many students participate in class I know that it is due to the way I teach", "I have realized that students respond to my modelling of certain behaviours or attitudes", and "If students do well in their assignments I know it is to a large extent due to my teaching".

As was outlined in Chapter Three three hypotheses were examined. First it was investigated whether locus of control and teaching behaviour in the two domains of encouragement and participation were related. Instructor 02 received a low score of 2.9 on encouragement and a low score of 2.7 on participation. These results provide some indirect support for the hypothesis that internal locus of control orientation is related to high student ratings on these domains of teaching behaviour. Second, it was hypothesized that a high degree of compatibility between espoused teaching philosophy and actual

classroom practice were related to internal locus of control orientation in teachers. As one could see in the previous analysis, some degree of incongruence between espoused theory and theory-in-use could be identified. Since the score obtained from the LOCSFT did neither reflect an internal nor an external locus of control orientation, the second hypothesis, indirectly, seems to find some moderate support. Thirdly, it was hypothesized that high SDLRS scores of students were related to internal locus of control orientation in teachers. Since the contact among teacher and students was much more intensive in the seminar group than in the lecture, only the SDLRS scores from the seminar students will be considered now. As was pointed out above, the SDLRS scores for this group of students ranged from 183 to 245, with a mean score of 217.10. Although these results do not directly contradict hypothesis three they do also not support the hypothesis. However, some kind of a relationship between locus of control orientation and SDLRS scores seems to exist: the LOCSFT score is moderate and so are the SDLRS scores.

Philosophy of Teaching of Instructor 03 (Politics)

Purpose of higher education. The purpose of higher education was defined as "creating a hunger for knowledge", "to inspire the student that he wants to learn", "to make learning fun", "to illustrate fundamental principles and concepts", "to point out connections between bits and pieces of information", to "stimulate thinking and not just to disseminate knowledge", and to "provide

problem-solving models".

I see the role of teaching as bringing real life experiences, which I have experienced in my lifetime, to the student in order to illustrate fundamental principles and concepts that they just read in the textbook. So by using examples I can make it more interesting. My overall goal is to inspire the student to want to learn. And I think that should be a goal of higher education, to inspire, create enthusiasm, to create a hunger for knowledge.

Role of the teacher. The role of the teacher was described by the key concepts of "being a motivator or stimulator", "finding out what excites the student", "being a group facilitator" or "someone who keeps the group together", "being someone who encourages the students to argue against certain concepts", and being "a challenger". A concern for giving guidance without making all the decisions oneself was also addressed.

I try to bring the group together as one, to keep them cohesive, which makes learning more fun in a group environment. I'm also a facilitator because I don't dictate how things have to be run. And a leader in the sense like "these are the concepts that we want to talk about, these are the ones I want you to focus on", and I am a facilitator that I also try to encourage them to think about those concepts. Argue against them. In the seminars I see myself as a moderator who keeps basically on track or a referee if things get out of hand.

Role of the student. The role of the students was seen as "more than a recipient of knowledge". They were seen as "participants in the learning process". "Learning through discovery" was emphasized. However, at the same time the students were described as a "passive lot" who have been taught to be passive by the system since they have "been treated like cattle": "You know they sit there and take notes, and basically they are just recipients of knowledge". For this reason they need to "be shaken up". The role of the students was further described as learning interpersonal skills together with academic skills.

Unless they participate and make the self-discovery of learning themselves it has no meaning. If they actually participate in a group exercise working with a person and participate in a debate format..., well, you see their eyes glow, they are all excited about it. Because they did something on their own and they made their case. And then they also have the opportunity of stating that case orally in the seminar. And the seminar is, as you saw, totally run by the students.

Strategies. Approaching topics from more than just one perspective was highlighted as the main strategy used. For this reason the seminars are completely run by the students who engage in a debate. "I particularly like the dialectic process, it forces the students, particularly accounting students with little interpersonal skills, to deal with other people". The lectures are pervaded by questions "which force the students to think and to participate". The

beginning of each lecture is used to recapitulate the major points discussed in the previous lecture. "So I ask the questions so that they see a continuum, so that they see that this is a building block based on the previous one". Waiting for an answer was another strategy mentioned. "If I don't get the answer I just stay there and I keep asking the students until I get the correct response". Being asked whether he would always be as energetic as in the one lecture that was observed he responded:

That's not me -- I mean, that's an act. Well, you need to be that way, though. I am not normally that way. But put me in front of a group, I know that to create learning, I have to create desire, to create desire I have to create enthusiasm, to create enthusiasm I have to show energy. It's a chain reaction.

The blackboard as a means for combining the visual with the verbal was regarded as significant in that it helps students to sustain interest. Using the students' names was also considered important: "You know, if students know that you know their names they automatically say you care". In the seminars the students are broken down into small teams who have to work on an assignment together.

They have to read some materials, develop an assumption, actually attack these assumptions and find outside sources to support these assumptions. In the way the course is structured it is in the seminars that the students really learn.

Evaluation. In team presentations the students are evaluated independently in terms of how they attack the assumptions of the position held by their partner, that is "not just attack the facts that they mention but attack the very legs upon which the arguments are based". "They are marked independently for their presentation and their rebuttal and jointly for their participation and for leading the class". The students can choose topics for assignments (leading a seminar and writing an essay) from a given list of topics. "They all have to lead one seminar, they all have to do one paper". The final exams are a composite of multiple choice questions "where all the answers are correct only one is more correct than the others", short answer questions "where they have to compare and contrast and have to look at both sides", and an essay question, "which forces them to synthesize the whole course". These criteria were all made explicit to the students. However, the students are not involved in the evaluation procedure.

I think there are certain things that have to be determined by the teacher and I think that should be the amount that is set for the examination for the evaluation and how evaluation is going to be determined in order to maintain that they are fair and rigorous. The students may not want a rigorous examination...

Restraints. The only restraint identified was that the "liberal arts are continually kicked out of the professional areas" and thus students in accounting, business and administration come out of the educational

environment with too narrow a focus in their education. "Areas like accounting, business and administration should incorporate more of the liberal arts curriculum into their courses. They (the students) are knowledgeable in their particular area but they are not able to deal with other people in other situations". Since people today, statistically, will "have to change their careers up to four times in order to obtain full life employment, they need to have a wider perspective than just accounting".

I realize they cannot get all of their education through a liberal arts environment, you know, like a post-secondary institution, but at least by opening up they become aware of other issues, other avenues, and they may become interested in other new things.

Table 26 summarizes the key notions of this instructor's (03) espoused theory.

The fact that instructor 03 showed interest in the research and agreed to participate serves as an indication that, on an espoused level at least, he shares the view that critical thinking and self-direction are important goals of higher education. The foregoing data analysis illustrated that the instructor expressed substantial concern for these goals. Statements such as teachers should "create a desire for learning" and students should be "discoverers of knowledge" or "critics of assumptions" clearly express a belief that self-directed learning and critical thinking are significant educational aims. The only statement that is antithetical to the two implicit goals of education is the

Table 26

Espoused Theory of Instructor 03

Purpose of higher education	<ul style="list-style-type: none">- to create a desire for learning and knowledge- to provide a model for problem-solving- to illustrate fundamental principles and concepts- to teach students to identify assumptions underlying certain arguments and to question these assumptions
Role of the teacher	<ul style="list-style-type: none">- a challenger and provocateur- a motivator, animator, actor- a modulator- leader, referee (a person who provides the necessary guidance)- a facilitator (a person who basically keeps people on track, does not dictate how things have to be run, and helps the group to become cohesive)

(table continues)

Role of the student	<ul style="list-style-type: none">- need to be involved as active participants in the learning process- are discoverers of knowledge- are critics of assumptions- should develop academic and interpersonal skills- "have been treated like cattle"- need to be "shaken up"
Strategies	<ul style="list-style-type: none">- lecture pervaded by many thinking questions- team work in seminars- seminar format: debate- use of students' names- use of blackboard for providing structure to the lecture (writing out key notions)

(table continues)

Evaluation	<ul style="list-style-type: none">- evaluation needs to be done by the instructor- students can choose topics for assignments; need to be approved by the instructor- criteria are made explicit to the students- during seminar presentations students are evaluated primarily for their identifying and challenging of assumptions underlying certain arguments- the final exam is the synthesis of the course (multiple choice, short answer, and essay questions)
Restrains	<ul style="list-style-type: none">- too little liberal arts components in the professional areas (students are insufficiently prepared for the life they have to expect outside university)

instructor's (03) view on evaluation, but this will be dealt with in a later section. Once again it should be emphasized that the instructor was not asked directly whether he viewed self-direction in learning and critical thinking as important goals in higher education, but that the six interview questions were deliberately chosen since they required the instructor to describe the goals of higher education in his own words. It is evident, that instructor 03's expressed purpose of education demonstrates a high degree of compatibility with "the implicit goals of education".

During the repertory grid administration, six constructs were elicited by the instructor: "participatory vs. nonparticipatory", "friendship vs. mentor", "reference vs. knowledge", "action vs. nonaction", "organizer vs. disseminator", and "organizer vs. referent". What is striking is the construction of friendship and mentor as "opposites". Cranton (1992) describes the role of the mentor as a "combination of advisor and friend" (p.68). This instructor, however, did not make the connection between friend and mentor. The two constructs "organizer vs. disseminator" and "organizer vs. referent" are also interesting in terms of their implied dichotomy. Since an organizer is neither a disseminator nor a referent, the term is likely to have connotations of an animator, motivator or even "facilitator" whose primary concern is to "set (to organize) the stage " for learning.

Table 27 shows the instructor's constructs and ratings for each educator role (F=Facilitator, R=Resource person, Fd=Friend, P=Planner, E=Expert,

Table 27

Constructions of Educator Roles for Instructor 03

Emergent Construct 7	F	R	Fd	P	E	I	Me	Mo	Pt	Co	Implicit Construct 1
participatory	7	1	2	3	1	6	3	6	4	5	non- participatory
friendship	4	7	3	2	1	3	1	1	6	5	mentor
reference	4	7	6	5	3	2	5	5	1	1	knowledge
organizer	6	5	3	7	5	1	4	2	3	4	disseminator
organizer	7	1	2	6	5	4	2	6	3	4	referent
action	7	2	3	5	1	5	6	7	6	4	inaction

I=Instructor, Me=Mentor, Mo=Model, Pt=Provocateur, Co=Co-Learner). The grid contains some interesting information. The roles of facilitator and resource person are almost seen as opposites. Whereas the facilitator is participatory, the resource person is nonparticipatory. The facilitator is also an organizer, the resource person is a referent; however, both are considered not to be disseminators. Whereas the facilitator role implies action, the role of the resource person does not imply action. It is interesting that Brundage and Mackeracher (1980) describe the behaviours of the facilitator as "behaviours which include being a catalyst, *resource* (emphasis added), reflective mirror ..." (p.59). Here, the facilitator is mainly an organizer. The high rating on participation and action for the facilitator role again can be found for the instructor and for the model. Resource person and friend are seen similarly, while it is somewhat peculiar that friend was rated fairly low on friendship. Planner and facilitator are seen to share similar connotations; the planner is also perceived as being involved in action although as being less participatory. Provocateur and co-learner are seen to be almost the same. This fits well with an understanding prevalent in the adult education literature that a provocateur, as somebody who is involved in challenging assumptions, is also likely to be a co-learner. Interesting also is that both roles are seen to imply a sense of friendship. Cranton (1992) writes about the co-learner role: "There must be a high degree of trust and comfort between educator and learners" (p.89). This is certainly also true for the provocateur role. There are

also some similarities between the instructor role and the roles of provocateur and co-learner; however, the emphasis in the instructor role seems to lie in the dissemination and transmission of knowledge.

In the interview, the instructor described himself as a leader, facilitator, moderator, and referee. However, during the conversation it became evident that his notion of being a facilitator and leader also seemed to imply notions of being a challenger and provocateur, motivator, and animator. A strong concern for "motivating students" was expressed. The roles facilitator, instructor, and model all scored high on participation and on action. The instructor's participatory behaviour and "being in action", so it seems, are understood as major motivating variables. In this context it is also interesting to note that being a co-learner is seen as less participatory than being a facilitator, instructor, or model. One could infer therefore that the notion of "being participatory" is rather interpreted as "doing something for others" than as a "doing something with others". "Being participatory" then seems to be the same as being in "(inter)action". The difference between the co-learner role and the role of a facilitator, instructor, and model then seems to be a "power issue". The "power" which is addressed here is the "power to motivate". The co-learner role is construed as not having equal power to motivate others. In conclusion it could be argued that the repertory grid shows that instructor 03 believes that educator roles which imply a high degree of action on the part of the educator, such as facilitator, instructor, and model, have the power to

influence students so that they become more motivated. This understanding is compatible with the instructor's interview comments.

The data from the teaching observation of this instructor's course will be introduced next. Table 28 introduces some quotes from the narrative description of the teaching observation during the lecture which were here analysed in terms of the six teaching dimensions addressed by the TBAS. The four factors, encouragement, support, challenge, and open communication, received the strongest support from the teaching observation data. The amount of data pertaining to the encouragement factor aligns well with his expressed belief that instructors should be motivators. There is a clear concern for challenging students to reflect on the assumptions they hold about an issue. The instructor is also interested in sustaining good communication with students, is explicit about his expectations and states unambiguously his own opinions (factor three: open communication). Support is expressed by valuing the opinions of students, relating to people in ways that promote mutual respect, and recognizing the contributions of students. It is interesting though that the instructor only once asked whether the students had any questions, an issue also pertaining to the support factor. However, at this point one should be reminded of the fact that this instructor's course is divided into a seminar and a lecture; the observation data merely capture the instructor's behaviour during the lecture. During the interview the instructor stated: "The seminars are completely run by the students. ...It's in the seminar that the students really

Table 28

Observed Teaching Behaviour of Instructor 03 in a one and a half hour Politics Seminar

Teaching behaviour dimensions	Actual teaching behaviour as described in the narrative description of the teaching observation
encouragement	<p>"The attempt is being made to stimulate interest and understanding for looking at issues from two sides: 'This would be an interesting PhD thesis. We usually do not hear about these things'."</p> <p>"He points to the need to know and understand the roots for these political concepts. Profound knowledge and understanding are said to be important if one is ever in the need to exert power: 'Isn't politics great?'."</p> <p>"Then he asks 'Any questions so far?' When the student do not have any questions he is explicit about his own opinion about the current state of political affairs; 'In my opinion what the government does is...'"</p> <p>"The instructor also points out why he dislikes the conventional approach: 'Ideologies are never static but always dynamic. That's why I dislike this spectrum'."</p> <p>"All concepts are related to contemporary issues."</p>

(table continues)

support	<p>"He also praises students for a correct answer. Comments such as 'Right, you are on the right track' or 'yes, you had the idea', 'keep going, you are doing fine' are also common."</p> <p>"Then he asks: 'Any questions so far?'"</p> <p>"Some students give wrong answers. However, there is no ridicule about students."</p> <p>"When the class is over, some students come to talk to the instructor. They discuss some organizational things; there seems to be a time conflict regarding the assignments required for various seminars. The instructor promises to give it some further thought and says that the students should get back to him next week."</p> <p>"A student responds with a question rather than providing an answer to the posed question; the instructor takes up the student's idea and incorporates the 'question' into his lecture. Although it is not the expected answer he says: 'you have a good point though ... thanks for raising that'."</p>
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(table continues)

<p>open communication</p>	<p>"The atmosphere seems relaxed."</p> <p>"The instructor approaches the students. He asks for their names and tries to involve them in a small dialogue. He shows concern for knowing and remembering their names."</p> <p>"Then, he makes his opinion explicit regarding the chapter that will be discussed in today's lecture: 'Because the chapter on ideologies in your textbook is weak, I will emphasize this part a bit more.'" (also encouragement)</p> <p>"The instructor states explicitly that this definition is his own. He says clearly that the students could also give another definition in the exam, but is unequivocal about the fact that he likes his definition better. By doing this he demonstrates to the students that definitions found in textbooks can be challenged and does also, implicitly, invite them to criticize definitions by other authors." (also encouragement)</p> <p>"What follows is that his own definition is broken down into four criteria which then are written on the blackboard: 'So let me say something about each of the four criteria'."</p> <p>"There is also room for humorous remarks: 'Have you ever heard this sentence before: The state does not belong in the bedrooms of the nation? That was Mill'."</p>
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challenge	<p>"Criticism from students is invited, by asking them to reflect on whether a certain view is compatible with what they read, know, etc: 'Does this conflict with anybody's understanding of what you have been reading in the newspaper?'. "</p> <p>"Then he remarks that he read in the newspaper the other day that Bill Clinton would be regarded as a charismatic leader and challenges the students: 'As students of politics, how do you react on the phrase 'Bill Clinton is a charismatic leader?'" (also participation)</p> <p>"Let's talk about ideologies, what ideologies do for us. You have to remember that ideologies are coloured glasses."</p> <p>"He presents issues not just from one point of view. Statements such as 'there are some people who say this ... but there are also others who say that ...' are not unusual."</p> <p>"He also leaves no doubt about ambiguity: 'No one has the answers right now. We are in Nowhere's Land'."</p>
participation	<p>"Participation of students is invited quite often throughout the session, so it seems reasonable to infer that the students no longer experience great anxiety when asked to contribute something."</p> <p>"The instructor takes up the student's idea and incorporates it into his lecture."</p>

(table continues)

direction	<p>"What follows is a brief outline of what will be discussed this week and what reading the students are expected to have done by the end of this week."</p> <p>"Students' comprehension and attention is facilitated by a fairly structured lecture: 'I'm going to look at each ideology in three phases: Classical, reform, and modern ...'"</p>
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learn." It seems that the challenge in the lecture lies in the instructor's own posing of "thought-provoking" questions; the challenge in the seminar is the complete "being in charge" of the conduct of the session on the part of the students, which implies asking interesting questions themselves. Not much of the data could be identified as pertaining to the participation factor. However, this again is likely to be caused by the fact that the data were collected during the lecture and not during the seminar, where participation (student involvement in decision-making, etc.), next to challenge, are the core concepts. Two quotes could be related to the last factor "direction", whereas the second one could also be regarded as a communication item. It seems that the instructor did the planning of the lecture himself; that is, it was he who decided on the topics about which he wanted to lecture; this can be considered "directive".

Before the students' perceptions of their instructor's teaching behaviour of each of these six dimensions will be introduced, the major insights arrived at through the interview data, the repertory grid, and the observation of the lecture will be summarized. The interview data and the instructor's construction of the various educator roles in higher education showed a high degree of compatibility. This instructor (03) views himself primarily as a motivator, animator, facilitator (for him this means "challenger"), and instructor. The purpose of higher education was described as creating a "hunger for knowledge", "a desire for learning". "To identify assumptions" and "to reflect on these assumptions" is also expressed as a goal. The students are seen as

victims of the system in that they "have been treated like cattle". They "need to be shaken up", so that they "become discoverers of knowledge" and "critics of assumptions". The observation data showed a strong concern for encouragement. It seems that this instructor believes that by encouraging the students they will be able to regain their inherent motivation which has been degenerated due to having been forced into the passive role of the audience. The strong belief that the students are actually capable of fulfilling the roles he values, the roles of "discoverers and critics", is made explicit in his approach to the seminar. The interview data, the insights drawn from the repertory grid, and the data from the teaching observation show a high degree of compatibility. In conclusion it can be said that this instructor's espoused theory is in tune with his theory-in-use.

Table 29 introduces the students' perception of their instructor's (03) teaching behaviour on each of the six scales rated on a five-point scale. The TBAS scores ranging from 3.31 to 4.17 show that the instructor is perceived to be acting in a fairly balanced way in each of the six dimensions. Although all scores are on the positive side of the continuum, they also reflect the students' view that the instructor is merely moderately strong on most of these dimensions. The higher rating on direction and the lower rating on participation, however, clearly contradict what had been anticipated. However, since the quantitative data were collected during the lecture and not during the seminar there is a possibility that some of the students responded to the questionnaire

Table 29

Means, Standard Deviation, Maximum and Minimum scores for each TBAS

Scale (N=41)

<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Maximum</u>	<u>Minimum</u>
Encouragement	3.72	.42	4.63	2.75
Support	3.74	.37	4.43	2.86
Communication	3.90	.48	4.83	2.50
Challenge	3.71	.70	5.00	1.67
Participation	3.31	.50	4.20	2.20
Direction	4.17	.49	5.00	3.00

items in respect to their experience with the instructor during the lecture without taking into consideration the seminars. The most interesting rating is the one on challenge. Scores ranging from one extreme to the other, with a mean of 3.71 and a fairly large standard deviation (.70) indicate that there are some students who do feel strongly challenged by the instructor whereas there are others who do not. A possible reason for this may be found in the personality characteristics of students and instructor. The psychological type profile of the instructor (03) will be discussed next and will be compared with the students' profiles in the attempt to provide further explanation of the students' ratings of their instructor on the six teaching dimensions.

Psychological Type

Table 30 shows the instructor's (03) scores on each of the eight scales of the PET type test (ET=Extraverted Thinking, EF=Extraverted Feeling, ES=Extraverted Sensing, EN=Extraverted Intuition, IT=Introverted Thinking, IF=Introverted Feeling, IS=Introverted Sensing, IN=Introverted Intuition). The highest score was obtained for extraverted sensing defining the instructor's highest score. His auxiliary function is thinking, which acts in both an extraverted and introverted mode. This type profile is interesting in that it demonstrates a clear preference for perception (sensing and intuition) while the two judgemental functions, thinking and feeling, only received rather moderate ratings. The instructor's expressed concern for teaching students to identify and to challenge assumptions could be interpreted as indications for working

Table 30

Type Profile of Instructor 03

Variable	ET	EF	ES	EN	IT	IF	IS	IN
Instructor 03 (Politics)	36.67	36.67	86.67	66.67	33.33	6.67	13.33	20.00

from the thinking function (Cranton, 1993). Because the type profile indicates that this instructor is strong on the sensing as well as on the intuitive side, the possible preferred teaching style of the extraverted sensing as well as of the extraverted intuitive type is of interest. Based on Jung's (1971) work, Cranton and Knoop (1990) write about the extraverted sensing type teacher:

Your preferred teaching style is one of working with real life experiences and real objects in the environment. You have a lively capacity for enjoyment which is contagious among your learners. Your style is effective in a variety of teaching environments: ... you would (also) work well in the practical fields of higher education (nursing education, teacher education, finance and accounting, and the like). Ideally you are involved in experiential learning; that is working with learners in real life situations to obtain specific practical skills....Your strength as a teacher is your ability to relate learning to experience... (p.9).

The extraverted intuitive teacher is described as:

You bring great enthusiasm and intensity to a teaching situation. You are stimulated by new possibilities, new people, and are an initiator, promoter, and speculator. These preferences will lead you to an active, exciting, involved teaching style. You have the capacity to inspire courage and kindle enthusiasm in others. Your style is contagious... You will work best in subject areas with plenty of scope for your ideas. Having learners work in groups on problems or discussing ideas would

suit you. If you get "locked into" a course with a prescribed curriculum, you will feel that you are in prison. (p. 7)

At this point it is interesting to recapitulate this instructor's statement regarding the purpose of higher education:

I see the role of teaching as bringing real life experiences, which I have experienced in my lifetime, to the student in order to illustrate fundamental principles and concepts that they just read in the textbook. So by using examples I can make it more interesting. My overall goal is to inspire the student to want to learn. And I think that should be a goal of higher education, to inspire, create enthusiasm, to create a hunger for knowledge.

Although Jung (1971) describes the two functions intuition and sensing as being antithetical, it seems justifiable to conclude from the foregoing quote that instructor 03 is strong in both functions. His concern is to relate the content to real life experiences (sensing); however, the predominant part of his teaching seems to be rather determined by his intuition function and less by his sensing function. It became evident in the teaching observation that this instructor prefers to challenge the textbook, that he has his own ideas about issues and that he is "convinced that his ideas are better". He enjoys discussing concepts and is open for new views on issues. There is a strong concern to inspire, to be an animator and motivator. Although the PET test identified the instructor as an "extraverted sensing type" there is ample

evidence to believe that as far as his teaching is concerned this instructor is mainly working from his intuitive function. When investigating the compatibility of psychological type between students and instructor this insight needs to be taken into consideration.

As could be seen in the quantitative analysis, 41 students completed a PET test. Twenty students had a dominant extraverted sensing function, two students had a dominant intuition function. Seven students were the highest on introverted thinking, while five were extraverted thinking types. The remaining six students had a dominant feeling function.

Following the argument outlined previously, one can see from the data that only 2 students, or 4.8% of the group, had a preference for intuition. Twenty students (almost 50%) had sensing as their dominant function. It is Jung's notion that in the early adult years one of the two functions, sensing or intuition is developed, most likely at the expense of the other. Therefore one could conclude, that those students who were dominant on sensing and prefer real or rather practical tasks such as "working on a hands-on project", could not well adjust to the instructor's preferred teaching style, that is to discuss concepts, challenge these, and finally come up with new views on the issue. The twelve thinking types however, are most likely to feel comfortable with this approach; preferably with the more analytical part (identify and challenge assumptions), and less with the creative part (coming up with new insights) (Cranton, 1993; Knoop & Cranton, 1992; Knoop, 1993). One may speculate

therefore, that the two students who shared a preference for the intuition function as well as the twelve students who had a dominant thinking function, were comfortable with this instructor's (03) preferred teaching style. One could further theorize that the remaining 26 students who had a preference for sensing and feeling were less comfortable with his approach. In respect to the students' rating of their instructor on the six dimensions of teaching behaviour, this may mean that the variation in scores, ranging from 1.67 to 5.00, assigned to the challenge domain (with a mean of 3.71 and a standard deviation of .70) can be explained by the fact that the class was split into those students who could identify well and those who could not identify too well with the instructor's preferred teaching style.

This study was conducted on the basis of the assumption that a compatibility in personality characteristics between instructor and students is a crucial factor in the teaching-learning interaction. It was expected therefore, that a high degree of compatibility in type between instructor and students would be related to high SDLRS scores. As could be seen in the previous analysis of the quantitative data, the SDLRS scores for the total group of students (41 students) ranged from 173 to 251. Twelve students scored above the mean score of 214 (Guglielmino, 1977). Six students received a score above 230. The mean SDLRS score for this group of students was 205.46. Three of them were extraverted sensing types, one was an extraverted thinking type, one an extraverted intuitive, and one had a dominant introverted feeling

function. What is really interesting, however, is that all these six students were fairly strong on intuition. To illustrate this, their type profiles will be shown in Table 31.

Thirteen students received a SDLRS score below 190. Seven had a dominant sensing function with little intuition, and two had an extraverted feeling function with little intuition. However, one student was undifferentiated between introverted thinking and feeling with little intuition. One was an extraverted thinking type with strong intuition, and one was undifferentiated across all functions, with the extraverted perception functions, however, receiving the lowest scores. Overall it can be said that those students who scored the highest on the SDLRS were also strong on intuition. As was seen in the quantitative analysis there is a relationship between SDLRS scores and type. In the previous discussion of the qualitative data it became evident that this instructor (03) considers self-direction in learning (and critical thinking) a goal of higher education. His approach, particularly in the seminar, clearly reflects this belief. A mean score of 205, however, is considerably below the mean score of 214 that Guglielmino (1977) obtained in her study. This rather low score might be partially explained by the fact that the majority of the students in the course shared a preference for sensing, which, as was explained above, is most likely not the function this instructor proceeds from in his teaching. ES also was not found to be related to SDLRS. However, whether or not this is a function of the compatibility between students' type and the instructor's type cannot be said for

Table 31

Type profiles of the six Students who Received an SDLRS Score above 230

Variable	ET	EF	ES	EN	IT	IF	IS	IN
Student 088	26.67	26.67	13.33	30.00	40.00	63.33	40.00	23.33
Student 093	50.00	43.33	53.33	73.33	46.67	36.67	26.67	26.67
Student 096	50.00	26.67	26.67	46.67	33.33	33.33	26.67	26.67
Student 113	33.33	40.00	60.00	56.67	36.67	16.67	20.00	3.33
Student 117	43.33	4.00	53.33	46.67	33.33	16.67	36.67	20.00
Student 081	56.67	63.33	66.67	63.33	40.00	3.33	10.00	3.33

sure, since Herbeson (1990) found in her study that high SDLRS scores are related to a preference for intuition.

Locus of Control

The instructor (03) received a score of 34 on the LOCSFT. This reflects a strong internal locus of control orientation. Some the items the instructor could identify with most will be introduced:

"I have realized that students respond to my modelling of certain behaviours or attitudes."

"I can make every student learn. It's merely a matter of finding the right approach to connect with them."

"There is always a way to teach a particular student."

"The way I approach students makes a difference in how they respond to me."

"There is direct connection between how well I am prepared and how well a session runs."

The instructor strongly disagreed with the following items:

"Whether a student is interested in the subject matter is beyond the range of my influence and control."

"I think that effective teaching is mostly a gamble."

"I feel that I have little influence over how much students learn."

As was outlined in Chapter Three, three hypotheses were examined.

First it was investigated whether locus of control in teaching and teaching

behaviour in the two domains encouragement and participation were related. Instructor (03) received a score of 3.72 on encouragement and a score of 3.31 on participation. Although both scores are on the positive end of the continuum, they only reflect a moderate rating on these two factors. The hypothesis that internal locus of control orientation is related to high ratings on encouragement and participation does not find sufficient support through the data and therefore needs to be rejected. Second, it was hypothesized that a high degree of compatibility between espoused teaching philosophy and actual classroom practice were related to an internal locus of control orientation. As one could see in the previous analysis, a high degree of compatibility between espoused theory and theory-in-use could be identified. Hypothesis two therefore seems verified. Thirdly, it was hypothesized that high SDLRS scores of students were related to internal locus of control orientation in teachers. The low mean SDLRS score received by this group of students contradict hypothesis three which needs to be rejected. However, in Chapter Three the argument was forwarded that research on Rotter's Locus of Control Scale, indicated that it is affected by a social desirability response bias (MacDonald, 1973), and that this is likely to be the case also for the LOCSFT. For this reason these results need to be treated with caution.

Philosophy of Teaching of Instructor 04 (Accounting)

Purpose of higher education. The purpose of higher education was seen to be the students "assuming critical thinking and problem-solving abilities".

This was considered the major difference between the community college and the university. "We are not here to show people how to do things". In this instructor's view "students should be able to evaluate a situation". Students are seen to need a "theoretical background to deal with real life situations".

However, not content but the purpose of dealing with this content should be emphasized, and models should be provided as to how problems can be solved.

When they work with real life situations in the Faculty of Business or later in their work they need to have a point of reference for day-to-day problems. Others may disagree, but I think we are not here to show people how to do things. The main purpose of higher education is to help people to see the big picture so that they can later see the point of reference....If we cannot distinguish the forest from the trees then the purpose is lost. Emphasis should be on the purpose - why you are studying what you are studying!

Role of the teacher. The role of the teacher was seen as one of "facilitating the students' learning experience". The teacher's responsibility was seen to be "challenging the students" by asking questions so that they "learn by discovery and find the answers to these questions themselves". Making students recognize the reasons, "the rationale", for what they are studying was identified as a major responsibility of being a teacher in higher education. In this instructor's view, the teacher also has to provide the answer to the

questions himself, when the students do not respond.

I challenge them all the time. This drives some of them crazy. They don't want to answer these questions. There is a purpose of asking these questions, that is to help them to see the light at the end of the tunnel. When we talk of facilitating learning, we need to ask what kind of learning should be facilitated. I want to see the reason behind it; a rationale for what we are doing. I believe that if the students know the reason then they will see more meaning for what they are doing.

Role of the students. The students were basically seen as "being very passive". "They are here to learn a profession not to learn knowledge". They were considered to be consumers, not active participants in the learning process: "They want you to decode the text for them. They wait for the professor to do the work for them in the classroom. It is less effort than struggling through the material themselves". The role of the student should be one of "discovering answers", "finding the rationale behind things". However, the instructor commented: "If you ask them 'why' most of them don't come up with a good answer". The students are also seen as "having almost no professional experience". However, their personal experience was acknowledged.

They have almost no experience. Some classes have no experience whatsoever. Sometimes I relate things to personal experience not professional experience. Because they have personal experience. It

need not be work-related or professional experience, it can be experience that they had or gained at home or at school. It depends on the topic. The students should be involved more actively in the classroom. I like that a lot.

Strategies. This instructor described his teaching style basically as "question and answer". One strategy identified as crucial by this instructor was "waiting for an answer". "If I keep waiting they have to come up with an answer themselves. I stand there and wait for them to answer - sometimes 15 seconds". He commented that in the past he had the students work on projects, but "because of budget cuts I couldn't continue with that. Well the real reason is that the semester is too short. There are also political reasons." The blackboard was identified as the main teaching aid during the seminar. When asked whether he would follow the book closely he responded: "No. Usually I don't use the book. I use certain diagrams and may also take questions out of the book".

Before I come to class I have a scenario in my mind, how I can get from A to C. I know where I will ask them questions. Where I will ask them to contribute. Where I will challenge them. I also know how to tease them - they always misunderstand a part.

I stopped lecturing a long time ago. Is there anything that stops me from having a discussion or from having a seminar? I always ask the students "why". We have a lot of discussion.

Evaluation. The instructor commented that students were evaluated "strictly by exams". Three kinds of exams were used, a midterm test, a classquiz, and the final exam. The midterm exam and the final test were of the same format. Both consisted of "short-answer questions, analytical problems, multiple choice items and theory-related questions". "If I had the project as last year, they would have to apply each problem to a real life situation." If a student fulfilled all the requirements he or she would get a seventy. "Extra work adds up to 30 percent. So there is a category for creativity which is worth 30 percent." Being asked whether the students had input in the evaluation procedure he replied: "Not in this semester. Last time they could decide how much weight they were going to put on their project." Evaluation was considered somewhat problematic only from a subjective and emotional point of view:

I feel sorry for some students. They appear to understand in the classroom but in the exams they don't do well.

However, the use of self-evaluation was completely out of the question.

Oh no, they won't evaluate themselves. Otherwise everybody would get an A.

Restraints. No restraints were identified. However, the instructor did not run the course as a project as was his initial idea. This gives reason to speculate that there might be some perceived constraints which he did not address during the interview.

Table 32 summarizes the key notions of this instructor's (04) espoused theory. The fact that instructor 04 showed interest in the study and agreed to participate serves as an indication that, on an espoused level at least, he shared the view that critical thinking and self-direction are important goals of higher education. As could be seen from the interview data introduced above, the instructor expressed considerable concern for these goals. The only statement that is antithetical to the two implicit goals of education is the instructor's view on evaluation, but this will be dealt with in a later section. At this point, one should be reminded once again that the instructor was deliberately not asked directly whether he viewed self-directedness in learning and critical thinking as important goals in higher education, but that the six interview questions were chosen since they required the instructor to identify the goals of higher education himself. It is therefore interesting to see that instructor 04's expressed purpose of education shows a high degree of compatibility with "the implicit goals of education". The six constructs elicited during the repertory grid administration were as follows: "Expertise vs. communication", "expertise vs. teaching", "closer relationship vs. teaching", "shared learning vs. challenge", "helping vs. challenge", and "interested in the students vs. interested in the subject matter". The fourth construct "shared learning vs. challenge" is somewhat surprising in that the adult education literature usually refers to the provocateur also as a co-learner. Here, however,

Table 32

Espoused Theory of Instructor 04

Purpose of higher education	<ul style="list-style-type: none">-to help students to acquire critical thinking and problem-solving abilities-to provide opportunities to receive a solid theoretical background needed to deal with real life situations-to help students to see the "big picture"-emphasis should be on the purpose of what is being studied not on the content
Role of the teacher	<ul style="list-style-type: none">- challenger- "facilitator" who helps them to make discoveries themselves- "question-poser"- making them realize the reasons for studying certain topics or content- making an active effort to involve the students

(table continues)

Role of the student	<ul style="list-style-type: none">- are very passive- should be active participants in the teaching-learning interaction- should learn by own discovery- should draw upon own experiences- should think critically- should identify purposes and rationales
Strategies	<ul style="list-style-type: none">- no lecturing- frequent discussions- frequent questioning- waiting for an answer- sometimes following of a "project approach"- main teaching aid used: the blackboard

(table continues)

Evaluation	<ul style="list-style-type: none">- strictly by exams (three sources)- no student input into the evaluation procedure for this course (with the project the students could decide how much weight they were going to put on their project)- if all requirements are met this equals 70 percent; 30 percent assigned for creativity- teacher evaluation basically seen non-controversial. Some "bad conscience" when students get bad marks.
Restraints	No restraints identified

the two notions are seen as dichotomous. Table 33 shows the instructor's constructs and ratings for each educator role (F=Facilitator, R=Resource person, Fd=Friend, P=Planner, E=Expert, I=Instructor, Me=Mentor, Mo=Model, Pt=Provocateur, Co=Co-Learner). The grid contains a variety of interesting information. First it is apparent that the roles of friend, mentor, model, and co-learner are construed almost identically. They all are seen to have expertise, to be involved in a closer relationship and in shared learning, to be concerned with helping, and to be more interested in the student than in the subject matter. It is not surprising that planner and expert received similar ratings; however, the similarities between the ratings on expert and facilitator are striking. The facilitator is considered as being more concerned with helping than being the expert, but this seems to be the major difference. There also seems to be an overlap between friend and resource person except for the last two constructs "helping vs. knowledge bank", and "interested in students vs. interested in subject matter". The two columns which contain the most significant information are probably the ones pertaining to the instructor and the one pertaining to the provocateur role. They differ mainly in the recognition of expertise on the side of the provocateur. The provocateur is construed as an instructor with expertise. This also implies the notion of challenging as being made explicit through the third and fourth construct of the grid. "Closer relationship vs. instructing" and "shared learning vs. challenge" (constructs

Table 33

Constructions of Educator Roles of Instructor 04

Emergent Construct 7	F	R	Fd	P	E	I	Me	Mo	Pt	Co	Implicit Construct 1
Expertise	1	7	5	7	7	3	7	7	6	7	communication
Expertise	6	7	7	6	7	1	7	7	4	5	teaching
closer relationship	6	7	6	5	6	1	7	6	1	7	instructing
shared learning	6	6	6	5	6	2	7	7	1	7	challenge
helping	7	1	7	5	3	6	7	7	5	6	knowledge bank
interested in the students	3	2	6	1	3	3	7	7	5	7	interested in subject matter

three and four) yielded almost identical ratings for each of the 10 elements.

The instructor as well as the provocateur are both rated highly on the instructing and challenging end of the two constructs. It is apparent that both these constructs show a lack of diversion in the ratings assigned to the 10 elements of the grid (most ratings were in the high range). This may reflect some difficulty of the instructor in distinguishing sharply between roles of educators in higher education. It may also be explained by the instructor's unfamiliarity with these roles at the time of the grid administration, due to having no previous experience in reflecting on the meaning of these roles and their implied connotations. In the interview, the instructor (04) described his role as a teacher in higher education as challenger and facilitator. The two roles, provocateur and facilitator, come across as almost antithetical in the grid. Both however, are considered as having expertise (the inconsistency with the rating on expertise for the facilitator role was pointed out previously). There are also at least two further inconsistencies in the way the facilitator role is construed by this instructor. When rated along the first construct (expertise vs. communication) the facilitator is rated the lowest on expertise and when rated along the second construct (expertise vs. teaching) the facilitator was given high score on expertise. It seems also interesting to note that the facilitator is considered to be holding closer relationships with students but simultaneously as being less concerned with students than with subject matter. These contradictions need to be taken into account in the final interpretation of the grid.

This construction is also inconsistent with the literature. Typically the facilitator role involves a notion of "support and encouragement, as well as a responsibility of responding to individual students' needs" (Cranton, 1992, p.76).

It might be that this instructor's espoused theory is not really congruent with the assumptions he actually holds about educator roles. The grid interpretation provides some support to assume that the current instructor's teaching role is better described as a combination of instructor and provocateur than of facilitator and provocateur. Finally, however, it should be pointed out that the grid data should be treated with caution due to two reasons: first, the current instructor's lack of previous experience with "reflecting on educator roles"; and second, his own remark during the grid administration, "I would probably assign completely different ratings if I had to do it again", which mirrors a high degree of doubt and insecurity in terms of the given ratings.

In what follows the data from the teaching observation of this instructor's course (third-year undergraduate accounting course) will be examined. The categories reflect the six teaching behaviour dimensions as addressed by the TBAS. As Table 34 illustrates, most of the data could be identified as pertaining to the encouragement and challenge domain. Students were frequently encouraged to answer questions or to participate in the session, and many of the questions were so-called "why-questions", which means that they addressed the premises on which the arguments were based. Supportive behaviour, here being a good listener and actively recognizing the contributions

Table 34

Observed Teaching Behaviour of Instructor 04 in a one hour Accounting lecture

Teaching behaviour dimensions	Actual teaching behaviour as described in the narrative description of the teaching observation
encouragement	<p>"In a calm and patient manner he says: 'Come on, wake up. That is easy?'"</p> <p>"Although this is not really the answer to the actual question, the instructor does not criticize but acknowledges the contribution: 'Okay, you put more emphasis on But <i>how</i> is it done?'"</p> <p>"I rely on your knowledge of stats', he comments."</p> <p>"He remains coming across as calm and patient. 'Come on. Don't give me that look', he says, after he posed a problem nobody reacted to."</p> <p>"Then one of the more mature students, again a woman, responds to the question. Students are also invited to think of real life situations for the concepts that are discussed. 'Can you give me an example?' is a question often raised."</p>

(table continues)

support	<p>"The contribution is acknowledged, although the question is not really answered yet."</p> <p>"A student responds. The instructor supports the students 'Okay, that's correct'."</p> <p>"Answers elicited by the students are never treated as explicitly false. When it is not exactly the answer that is needed or expected the instructor might say 'Hm. Could be'."</p> <p>"One Japanese student, who really has trouble in expressing himself in English, explains the concept. The instructor listen patiently. He also explicitly thanks students for contributions and provides praise. When another student indicates through facial expression that she had the same idea he comments 'Oh, you wanted to say that, too? Good'."</p>
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(table continues)

open communication	<p>"He explains fairly patiently and clearly. A lot of questions are incorporated into the lecture, which provide a nice and clear structure to his talk."</p> <p>"At times not much time is given for the students to come up with an answer. In these occasions, the question transforms into a rhetorical one and is answered by the instructor himself."</p> <p>"The previous chapters have been summarized and emphasis has been put on explaining the purpose of the chapters, explaining why what has been done."</p> <p>"Some students participate actively. They address their responses directly to the instructor - they do not interact with each other."</p> <p>"He again expresses genuine concern that the students fully comprehend the theory: 'Before we proceed we must understand these concepts first. They are important'."</p> <p>"The talk is always addressed directly to his audience. However, it becomes evident that no names are used. The audience is perceived as neutral?"</p>
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(table continues)

challenge	<p>"Can we assume that variable cost will behave in a linear fashion? Would you agree with that assumption?"</p> <p>"What are the underlying assumptions of this method? What do you think of the industrial engineering method?"</p> <p>" 'Why is it important to do 'so and so'? If this was so..... and that was so what would you conclude? What is the importance of this? Could you be a bit more specific?"</p> <p>"What follows is a phase in which many questions are asked. These questions, it seems, are not taken out of the book. 'What's the advantage to use regression to using the high low method?' 'What's the rationale for doing this?'"</p>
participation	<p>"Each concept is attempted to be created by the students."</p> <p>"The instructor does not seem to be afraid to admit some gaps in knowledge. 'Well, I might be wrong with this, but I think it goes...'"</p> <p>"He gives an example. When two students point out where he is mistaken he accepts their criticism willingly. 'Ah, okay'."</p>

(table continues)

direction	<p>"It is now around 9:20. 'Open your book on page..... On page ...you find..... Let's spend five minutes discussing the first three concepts'."</p> <p>"The instructor, who illustrates models by incorporating lots of examples, refers then to the textbook: 'Okay, that now takes me to step 4. On page ...they list those steps'."</p> <p>"By telling the students in advance what he will be doing in the next section of the session he provides a logical sequence to his talk which facilitates orientation. The students know exactly what is the current topic, what page the talk refers to, what's the issue right now. Confusion is minimized."</p> <p>"The prevailing teaching style, lecture pervaded by lots of examples and questions, is maintained. The exercises are taken from the book." "Number six. How would you estimate the cost function?"</p> <p>'What are the limitations of this function?'</p> <p>'Okay, we are running out of time. For next week, read the text with emphasis on ... We will discuss this and will do some exercises...'"</p>
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of students, was also discernible. The third factor, a concern for open communication, is somewhat more complex. Although it was pointed out before that students were encouraged to respond to questions, it was also evident that at times not enough time was provided to the students to come up with an answer. In these situations the instructor had the tendency to answer the questions himself. A supportive climate for communication also was not encouraged, since the instructor did not use any names when addressing the students, and did also not really encourage discussion among students. The prevailing interaction was one from instructor to individual student. The participation domain was addressed only in the sense that the instructor showed some willingness to accept a variety of points of view. This became evident when he accepted the students' criticism of his example. However, a willingness to explore a variety of points of view is only one aspect of the participation domain and it needs to be stressed that none of the other aspects found any support through the data. Finally the direction component, together with the challenging domain, received probably the most convincing backing from the data. The instructor showed a strong concern for giving clear instructions and giving clear guidelines as to what to prepare for the next session.

On the basis of this analysis of qualitative data, the following assumptions may be drawn: this instructor's (04) behaviour is most dominant on the two domains, challenge and direction; there is some concern for

encouragement and support; and there is less concern expressed for open communication and participation. However, the instructor said in the interview that he would like to see "a lot of discussion", that he would see himself as a "facilitator of learning experiences", and that he would like to have "the students to learn through discovery". At the same time, however, he makes his thinking about the students explicit by saying: "If you ask them 'why' most of them don't come up with a good answer". The interesting point here is that this instructor seems to conceive of his students as the direct opposite of what he values, that is "critical thinkers". As was pointed out already in the analysis of instructor 02, educators working from a humanistic perspective usually emphasize the significance of genuine trust in the abilities of the learner as a prerequisite for successful student learning. This lack of trust seems to be the critical variable by which the incongruence of his espoused theory and his theory-in-use may be explained. Since there is no trust, there is little expectation and hence only little patience ("I sometimes wait 10 to 15 seconds") when posing a question. This lack of trust is also implied in the instructor saying "Oh, no, they won't evaluate themselves, otherwise they all would get As", which provides some information regarding the instructor's behaviour in respect to "participation". A lack of trust, unconsciously, may prevent him to allow the students more input in other areas of decision making. Table 35 introduces the students' perception of their instructor's teaching behaviour on each of the six scales rated on a five-point scale. The rather low rating on participation supports the conclusion

Table 35

Means, Standard Deviation, Maximum and Minimum scores for each TBAS

Scale (N=27)

<u>Variable</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Maximum</u>	<u>Minimum</u>
Encouragement	4.3	.52	4.3	2.1
Support	3.5	.49	4.2	2.4
Communication	3.4	.52	4.5	2.5
Challenge	3.6	.78	5.0	2.0
Participation	2.4	.58	3.6	1.0
Direction	3.9	.55	5.0	2.7

arrived at through the analysis of the qualitative data. A high mean score on direction is also in tune with the previous analysis. However, the students perceived their instructor to express a stronger concern for open communication as opposed to what was expected. It is also interesting to note that the students gave their instructor the highest rating on the encouragement and not on the challenging scale. The high standard deviation of .78 on the challenging scale, however, indicates that there is some deviation among students' ratings on this variable. A part of the class does not seem to feel challenged by the instructor. One possible reason for this may be the students' perception of their instructor's impatience when asking questions (he often provides the answers himself), or it might be due to differences in personality characteristics such as psychological type.

Psychological Type

Table 36 shows the instructor's scores on each of the eight scales of the PET type test (ET=Extraverted Thinking, EF=Extraverted Feeling, ES=Extraverted Sensing, EN=Extraverted Intuition, IT=Introverted Thinking, IF=Introverted Feeling, IS=Introverted Sensing, IN=Introverted Intuition).

The highest scores were obtained for extraverted sensing and intuition which differ only in a few scores. Although the preferences here seem rather undifferentiated (Jung, 1971), the dominant function of the instructor is probably extraverted sensing. Feeling is the auxiliary function. Describing the

Table 36

Type Profile of Instructor 04

Variable	ET	EF	ES	EN	IT	IF	IS	IN
Instructor 04 (Accounting)	13.33	26.67	40.00	36.67	13.33	10.00	3.33	0.00

possible preferred teaching style of the extraverted sensing type, Knoop and Cranton (1992) write (based on Jung's [1971] description of psychological types):

Your preferred teaching style is one of working with real life experiences and real objects in the environment. You have a lively capacity for enjoyment which is contagious among your learners. Your style is effective in a variety of teaching environments: ... you would (also) work well in the practical fields of higher education (nursing education, teacher education, finance and accounting, and the like). Ideally you are involved in experiential learning; that is working with learners in real life situations to obtain specific practical skills....Your strength as a teacher is your ability to relate learning to experience... (p.9).

The instructor's expressed concern for helping students to relate the content to real life experiences and to learn through discovery, together with his statement that most of the students would lack the necessary "experience", fit well with the description of the preferred teaching style of the "sensing type".

As could be seen in the qualitative data analysis, 10 of the 25 students in the course who completed a type test received the highest score on extraverted sensing. Ten additional students also obtained a high score on extraverted sensing (within a range from 36.00 to 70.00) which could be interpreted as their auxiliary function. The remaining five students received a low score on extraverted sensing. Three of them scored highest on introverted

thinking, one on introverted feeling, and one on extraverted intuition with introverted thinking second. The SDLRS scores for this group of students ranged from 153 to 249. Fifteen students scored below the mean score of 214 (Guglielmo, 1977) and 10 students scored above the mean score. Two students scored higher than 240. However, of the ten students who scored above the mean only two had a dominant sensing function, whereas one of them had the same score for intuition and sensing. Four were intuitives, three were thinking types and one was extraverted feeling. The assumption that compatibility in terms of psychological type between students and instructor is related to students' self-directedness in learning needs to be revised. However, at the same time it needs to be stressed that self-directedness in learning was considered a goal of higher education and a possible learning outcome by the researcher but not necessarily by the instructor who participated in the study. It is still possible that compatibility of psychological type between instructor and students and students' development along the educator's defined and declared goals or objectives are related. One could argue that students whose type profiles show similarities to that of their instructor, are more likely to see him or her as a model or mentor (Cranton, 1992), and hence, are more likely to be open for influence exerted by the instructor, which is likely to result in a high degree of acceptance of and development towards the instructor's defined learning objective.

The majority of the students shared a strong extraverted sensing function

(either as dominant or as auxiliary function) with the instructor. One could speculate therefore that these students may feel comfortable with this instructor's preferred teaching style, that of drawing on real life experiences, and letting students learn by discovering things themselves. The high rating on encouragement may be explained by the compatibility of psychological type of instructor and students. The underlying assumption here is that people of similar type feel more "drawn" to each other than people of opposite type. This would be a nice concluding remark. However, saying this entails ignoring some important information implied in the data which was discussed before.

Examining the instructor's stated philosophy of teaching, the results from the repertory grid administration, and the results obtained from the observation of his teaching behaviour, it was found that there is some discrepancy between what this instructor would like to do or thinks he does, and what he really does. There is also some discrepancy between what the instructor thinks he does and the students' perceptions of his teaching behaviour. The instructor, for instance, is described as less challenging than he thinks he is. One has to take into account therefore, that there are differences in the way the instructor and the students construe what is happening in the classroom although there seems to be a high compatibility in terms of psychological type. The reason for the instructor being perceived as less challenging than he thinks he is might be grounded in the incongruence between his espoused philosophy of teaching and his real beliefs that guide him in his practice. The second reason for the

lower rating on the challenge scale could of course also lie in the fact that those students who do not share a dominant sensing function would feel more challenged if a different approach were taken.

The "conclusion" then seems to be somewhat more comprehensive: One might say, first, that this instructor's emphasis on real experience and real life situations has its explanation partly in his dominant extraverted sensing function. Second, this instructor may have a high potential to exert influence on this group of learners because of the compatibility in terms of psychological type with the majority of students ("You have a lively capacity for enjoyment which is *contagious* [emphasis added] among your learners..."(Knoop & Cranton, 1992, p.9)). Third, were his espoused philosophy of teaching and his actual philosophy of practice in tune, this would considerably enhance this potential to exert influence. Fourth, the students' mean rating on each of the six TBAS scales reflect the individual students' personal subjective perception of their instructor's teaching behaviour. The high standard deviation of .78 for the rating on the challenging scale may have its explanation in the few students who did not share a strong sensing function with the instructor.

Locus of Control

The instructor (04) received a score of 36 on the LOCSFT. This reflects a high degree of internal locus of control, that is, a strong belief that his own behaviour influences student performance and classroom events. Some questionnaire items the instructor strongly identified with, were:

"There is a distinct connection between how well I am prepared and how well a session runs",

"The way I approach students makes a difference in how they respond to me",

"I can make every student learn. It's merely a matter of finding the right approach to connect with them",

"If there are some students who seem to have not learned I know that I did something wrong",

"If many people participate in class I know it's due to the way I teach".

As was outlined in Chapter Three, three hypotheses were examined.

First it was investigated whether locus of control and teaching behaviour in the two domains, encouragement and participation were related. Instructor 04 received a high score of 4.3 on encouragement but a low score of 2.4 on participation. Since the participation domain mainly addresses "student goal setting" and "responsibility", hypothesis one seems to remain unfulfilled.

Second, it was hypothesized that a high degree of compatibility between espoused teaching philosophy and actual classroom practice were related to internal locus of control orientation in teachers. As one can see in the previous analysis, some degree of incongruence between espoused theory and theory-in-use can be identified. Since the instructor scored highly on the internal side of the LOCSFT, the second hypothesis also seems to remain unfulfilled. As with hypothesis two, this needs to be considered with caution. Thirdly, it was

hypothesized that high SDLRS scores of students were related to internal locus of control orientation in teachers. The SDLRS scores for this group of students ranged from 153 to 249. Fifteen students scored below the mean score of 214 (Guglielmino, 1977) and 10 students scored above the mean score. Two students scored higher than 240. A mean SDLRS score of 204 lies considerably below the norm. Hypothesis three needs to be rejected. As with hypotheses one and two, however, this needs to be done with caution, since the LOCSFT may be affected by social desirability response bias and the score obtained for the instructor 04 may not truly reflect his internal locus of control orientation.

Conclusion

It could be shown that the instructors' teaching behaviour is a function of the values and beliefs which guide them in their practice. However, it also became evident that although all instructors subscribed on an espoused level to the implicit goals of higher education, critical thinking and self-directed learning, for only two of them (instructor 01 and instructor 03) could these beliefs be identified as the guiding principles in their actual teaching (theory-in-use). As it was acknowledged that teaching is an action that takes place in a setting determined by many situational variables which change from one situation to the other, each instructor was analysed separately and no attempt was made to compare instructors. The analyses for instructors 01 to 04 also took into

account the following four variables: students' perceptions of their instructor's teaching behaviour, psychological type of instructor and students, locus of control orientation of the instructor, and student self-direction in learning. The following investigations were engaged in: First, it was investigated whether the instructor's actual teaching behaviour might be related to his or her psychological type. Second, it was explored whether the students' perceptions of their instructor's teaching behaviour was compatible with the data collected during the teaching observation and the individual interviews with faculty, and whether possible emerging incongruence between these sources of data, or high standard deviations for the student ratings on some of the factors, could be a function of discord of psychological type between student and instructor. Thirdly, the question was pursued whether the students' scores on the SDLRS were related to compatibility between the instructor's and students' psychological type. Fourth, three hypotheses were tested in order to investigate whether instructor's locus of control orientation is to be considered an important variable for the questions advanced in this study. The various relationships that could be identified were different for each instructor.

Students

Data from students were obtained through critical incidents accompanied by brief semistructured interviews. A small sample of two students from each instructor agreed to participate in this part of the data collection. It was apparent in these examples that most of the learning experiences the students

identified as most significant and which led to some degree of critical thinking, were learning experiences which were closely or immediately related to their personal lives and therefore were of real interest to them. In seven out of eight instances the first incident named by the students did not occur in the course the data were collected from. In most cases the students were able to distinguish concrete characteristics in the teaching behaviour of these unidentified instructors which contributed to make the learning experiences so significant. This provides some reason to believe that students intuitively "know" what teaching behaviour is most conducive to their learning. Being asked to name a significant learning experience in the course with the instructor the data were collected from, seven out of eight students could think of a significant learning incident (even though it was mostly described as less significant than the first one) and could point out specific teaching behaviours they perceived as key components in the learning experience. Table 37 summarizes the teaching behaviours for each of the four instructors (01 to 04) of which the students assumed that they contributed to the significant learning experience as identified by the critical incident exercise.

The obtained SDLRS scores could be supported through the qualitative data for some students but not for others (however, this might be a methodological problem since the students were not explicitly questioned or

Table 37

Teaching Behaviour of Instructors 01 to 04 the Students identified as most conducive for their Learning

	Instructor 01	Instructor 02	Instructor 03	Instructor 04
First Student	-demonstration -creation of a comfortable atmosphere for learning	no teaching behaviour identified	-the instructor acted like a judge/facilitator who kept order of the seminars	-was accessible
Second Student	-positive encouragement -levelling with students -points out good things you can do	-asked provocative questions -was helpful with discussions -open to different interpretations -interested in the material	-offered support and challenged us -he was open for communication	-was able to relate the issues to our experiences and other familiar situations -let us find answers to questions

tested in terms of the self-directedness in learning). The results also indicated that some students experienced some critical thinking in the course taught by the instructor (01 to 04) whereas others did not. These data were also considered in terms of compatibility of psychological type between student and instructor. They will be used in Chapter Five to elaborate on the results of the regression analyses.

Summary

This chapter introduced the results of the study. This was done separately for the quantitative and the qualitative data.

In a first part, the results from the quantitative data analysis were displayed, including the descriptive statistics as well as the results from the correlation and regression analyses conducted for each instructor. Two different stepwise multiple regression analyses were performed per instructor. First, it was investigated whether critical thinking (which was divided into the three variables, recognition of assumptions, interpretation, and evaluation of arguments) and self-direction in learning could be predicted from the six perceived teaching dimensions addressed by the TBAS. Second, it was investigated whether critical thinking and self-direction in learning could be predicted from psychological type of the students. The correlation analyses indicated that a strong correlation exists between EN and SDLRS. The correlations between the PET scales and the three critical thinking scales were almost nonexistent. Interesting, however, was a significant ($p < .01$) negative

correlation of extraverted thinking and CT3 (evaluation of arguments) in two occasions ($r=-.50$; $r=-.28$), and a moderate negative correlation ($r=-.36$) between extraverted sensing and CT2 (interpretation). The TBAS scales, too, correlated only slightly with the three critical thinking scales. However, there were more convincing correlations between the TBAS scales and the SDLRS. The subsequent regression analyses reflected the low correlations between the TBAS scales and the three critical thinking scales. Only in one occasion (instructor 04), could a perceived teaching behaviour be identified as a predictor of critical thinking. In this case, however, TBAS1 (encouragement) accounted for almost 30% of the variance of CT3 (evaluation of arguments). The stronger correlations between some of the six TBAS scales and the SDLRS were again expressed through the regression analyses. For instructors 02 and 04 TBAS4 (challenge) was identified as the teaching behaviour which can explain some of the variance of SDLRS. For instructor 03, TBAS2 (support) seemed to be one important variable. Although the correlation analyses indicated a modest correlation between TBAS and SDLRS for instructor 01, none of the variables met the criterion for entering the regression equation for the prediction of SDLRS. However, a large standard error of measurement makes these predictions unreliable and they need to be interpreted with caution. It also is obvious that the results obtained from one instructor and his or her group of students cannot be generalized. However, an underlying assumption of the study was that teaching is situation specific, that is, it is dependent on

personality characteristics of students and teachers, subject taught, teaching philosophy, locus of control, etc. The attempt to generalize the results obtained in one situation to a different setting would be antithetical to the study's premise. For the present research, the unit of analysis was student individual ratings on each of the TBAS scales in contrast to an averaged score on each scale (these are often used with a large teacher sample). The variation in teaching behaviour is therefore within the ratings the students assigned to each of the six TBAS scales.

As expected from the correlation analyses, extraverted intuition was an important predictor of SDLRS. Although there was also a moderate correlation between EN and SDLRS for instructor 01, EN did not enter the equation for the prediction of SDLRS. In one occasion, extraverted sensing could account for an additional 10% of the variance of SDLRS. The negative correlations between some of the three critical thinking scales and the PET scales were reflected in the regression analyses. For instructor 01, extraverted thinking was shown to account for almost 25% of the variance of CT3 (evaluation of arguments). For instructor 02, extraverted sensing could explain 11% of the variance of CT2 (interpretation).

In a second part the qualitative data collected for faculty and students were introduced and discussed. Data on faculty were collected through individual interviews, the administration of a repertory grid, and from the teaching observation. Data on students were collected through a critical

incident exercise which was accompanied by a brief semistructured interview.

Chapter Five discusses the major insights gained through this study. It discusses the contribution this research can make to the prevailing theories in the field. It also addresses the practical implications of the study. The chapter concludes with recommendations for further research in the area.

CHAPTER FIVE: SUMMARY AND CONCLUSIONS

Introduction

This study pursued four goals, the major one being to investigate whether the implicit goals of higher education, critical thinking and self-direction in learning, were actually accounted for in the university classroom. Secondly, it was a goal to explore whether there was something in the teachers' personalities and the values and beliefs they hold which determined their teaching behaviour. Thirdly, the study aimed at providing some further insight into the teaching behaviours as perceived by the students, which were more highly correlated than others with these students' critical thinking and self-direction. Finally, this research had as a goal to examine whether the development of critical thinking skills and self-direction in students varied with their preference for one of the eight psychological functions (thinking, feeling, sensing, and intuition in an either extraverted or introverted differentiation) as described by Carl Jung (1971).

In Chapter Three the reasons for trying to integrate research paradigms in this study were introduced and the difficulties implied in this endeavour were discussed. The view was presented that the methodology and method used in research needs to be determined by the questions asked (if the research is to be meaningful), and that the particular questions asked in the present study pertained to the three prevailing paradigms in education. It was shown that numeric measurement with the aim to obtain objective and generalizable results, interpretation with the goal to grasp the subjective experience, and

critical reflection with the goal to bring about change in the subjective and social experience, can be goals of the same research study.

The study was located in the conceptual framework of path-goal theory (House, 1971). Following the understanding forwarded in this contingency model of leadership it was assumed, that depending on the situation, different teaching behaviours might be used in sustaining and promoting learners' motivation. In Chapters One and Two the limitations of path-goal theory were discussed in depth. The Kellian (1955) perspective on motivation was introduced and was compared to the behavioural paradigm. However, it was concluded that student motivation, even though a state inherent in the individual, can be further influenced or brought about by teachers' behaviour or actions. These assumptions were shown to be compatible with the constructivists' view on motivation as well as with expectancy theory.

Since Myers (1986) argued that students' motivation was the principal prerequisite for the development of students' critical thinking skills, it was concluded that, depending on the situation, different teaching behaviours may be required to sustain motivation and thus foster self-direction and critical thinking. Each of the four instructors (01 to 04) who agreed to participate in this study, together with their particular group of learners, exemplifies a different "situation". A "situation", hence, is being defined by the magnitude of interacting variables such as instructor and learner characteristics, class size, level of instruction, area of instruction, time of instruction, location, etc. Implied in this understanding is the idea that no one teaching behaviour is superior to

another or more conducive than another for the development of students' critical thinking and self-direction, but that, depending on the situation, either perceived encouragement, support, open communication, challenge, participation, direction, or any combination of these dimensions is most suitable for the attainment of these goals. This conceptualization challenges the view advocated in the prevailing literature in education which has ignored the contingency aspect of most educational endeavours (cf. Eble, 1988; Knowles, 1984; Pifkurich, 1993) but instead has focused on the identification of certain teaching behaviours which were supposed to have the same effect in all situations.

This final chapter is divided into four broad parts. First, the limitations of the research will be clarified and summarized once again to put the discussion of the results into an appropriate perspective. The discussion of the results then will be broken down into three sections: results pertaining to faculty; results pertaining to faculty and students; results pertaining to students. It concludes with suggestions for theory and practice, as well as implications for further research.

Limitations of the Research

In Chapter One it was pointed out that since the study did not follow a pre- and posttest approach, no gains in critical thinking and self-direction could be measured. Critical thinking and self-direction in students may have been the

result of confounding variables such as former exposure to a different teacher, friends, or family background. It needs to be stressed therefore that the identified relationship is one only of current skills and attitudes of students and how they perceived the teaching behaviour of their instructor. We also should be reminded that the study was basically exploratory in nature; the small sample size of only four instructors did not allow for generalizations to be drawn from the obtained results. However, an underlying assumption of the study was that teaching is situation-specific, and this is by nature antithetical to the attempt to generalize the results obtained in one situation to a different setting.

The study was subject to the limitation that the perceived leadership behaviour of the teacher was assessed by the students responding to a questionnaire, and objectivity in the description of teacher behaviour was therefore jeopardized. Sympathy or antipathy regarding the teacher may have distorted the students' perception of the actual behaviour. Class size, level of instruction, and required versus elective courses also have been shown to influence students' perceptions of instructors. On the other hand it needs to be highlighted that it was exactly the students' perception of their instructor's behaviour in contrast to an "objective" behaviour that was the critical variable in this research. Educational and psychological scholars (cf. Clark & Peterson, 1986; Jahnke, 1982; Nickel, 1978) have long since pointed out that the mutual perception of teacher and students has a direct impact on the behaviour or action of both. The fact that locus of control as well as psychological type were

assessed by self-scoring questionnaires, deliberate and nondeliberate manipulation of the test results might have occurred. Faculty and students may have conceived of "being critical" and "self-directed" as the desired variables and may have tried to assign high scores to those items which appeared to correlate highly with these variables. As was pointed out earlier, this is indeed a concern when one considers that critical thinking and self-direction are highly valued attributes in Western societies (Brookfield, 1987a; Candy, 1991), and that research on Rotter's Locus of Control Scale indicated that it is affected by a social desirability response bias (MacDonald, 1973). It is also questionable whether the choice of instruments in order to measure critical thinking was fortunate. Although Watson and Glaser (1980) claim that the CTA measures those general skills and attitudes we commonly associate with critical thinking (it should be noted that only three subtests were actually applied in this study), it is still debatable whether the test has validity in the present study. The problem we face is one well-known scholars in the field (cf. Ennis, 1989; McPeck, 1981; Norris, 1989; Paul, 1992) have been discussing for decades; it is the simple question whether critical thinking skills are generalizable or whether critical thinking is always bound to a specific context, in this case the particular nature of the subject the students were taught. If the argument held true that critical thinking skills were not generalizable or transferable to other contexts, then what was really measured in this study would be whether the students had ever acquired those critical thinking skills asked for in the test, and this acquisition

would have either occurred under the instructor who participated in the study or otherwise. To approach it from a slightly different angle, we may question whether certain critical thinking skills, although maybe acquired as a result of the instruction, may not have been addressed by the test. This study was conducted on the basis of the assumption that critical thinking skills, although acquired within a specific subject context, are transferable to other situations. The Watson and Glaser Critical Thinking Appraisal was selected for two reasons: first, to the researcher's knowledge there exists no other instrument which is suited to assess these skills in adults and second, the test format makes it easy to administer to a large group and allows for completion of the tasks in a reasonable time frame. We should also not lose sight of the fact that since a correlational design was used to investigate the relationship between perceived teaching behaviour and critical thinking and self-direction, causal relationships could not be established; however, the qualitative data that were collected serve to confirm the assumption that perceived teaching behaviour influences student self-direction and critical thinking. Another weakness of this study was that the six scales of the Teaching Behaviour Assessment Scale showed high correlations among some of its scales, which may suggest a halo effect in that it shows that the students were not able to discriminate between the six different teaching behaviours the instrument was supposed to measure. One further limitation of the study is that only psychological type was included to investigate the compatibility between teacher and student personality. Other

characteristics such as age, gender, locus of control, academic experience, or professional experience might have had a direct impact on the development of critical thinking and self-directed learning. Variables such as life-philosophy, political beliefs, and socioeconomic factors also might have influenced the compatibility of student and teacher personality.

Results Pertaining to Faculty

The study could show that "espoused theory" and the "theory-in-use" were not in tune for two of the four university instructors. However, it became evident that faculty's teaching was determined by the actual values and beliefs they hold. A relationship between psychological type and faculty's teaching style was identified. Faculty displayed characteristics in their teaching which aligned very well with Jung's (1971) description of psychological types. Faculty's expressed beliefs about teaching seemed also to be influenced by their preference for a certain psychological function. Up until recently, the idea of considering psychological type an important variable in instructional settings had been ignored in the educational literature. Cranton (1992, 1993) introduced the concept to the adult education literature by discussing the implications psychological type might have for the process of self-directed and transformative learning. Instructors' preferences for certain educator roles were also partially explained by psychological type. This study supports the theory that the psychological type of educators does influence their practice.

Based on the studies of Decharms (1976), Deci et al. (1981), Soh (1986), Richards et al. (1989), and Sadowski and Woodward (1981), three questions related to locus of control were asked. The first was whether internal locus of control in teachers is related to a high congruence of "espoused theory" and "theory-in-use". This was confirmed for instructors 01, 02, and 03. The second question was whether internal locus of control in teachers is related to high student ratings on the two teaching behaviours encouragement and participation. This was confirmed for instructors 01 and 02. The third question asked if internal locus of control orientation in teachers would be related to high students' scores on the SDLRS. This question found some support only for instructor 01. However, these results need to be treated with caution since the LOCSFT may be affected by social desirability response bias as is Rotter's (1966) External Internal Locus Of Control Scale (MacDonald, 1973). The results indicate however, that situational variables such as psychological type and locus of control have a relationship with faculty's beliefs about teaching and consequently on their teaching behaviour.

Results Pertaining to Faculty and Students

The results of this study are not discussed separately for each instructor since the results for instructors 01 to 04 were introduced and discussed thoroughly in Chapter Four. However, the results from the quantitative analyses are recapitulated briefly.

The assumption that critical thinking could be predicted from teaching behaviour found some support only for instructor 04. The results indicated that CT3 (evaluation of arguments) could be partially predicted from TBAS1 (encouragement). We do not know what other variables do account for the variation of the CT3 scores. Ignoring for the time being all the other confounding variables such as exposure to a different instructor, family background, age, etc., we can assume that for this instructor (04), encouragement is one predictor for the development of the skill to evaluate arguments. Due to the small sample size we cannot know whether these results have occurred by chance; however, the assumption that those perceived teaching behaviours that are related to critical thinking and self-direction in students will differ according to each instructor was emphasized throughout the study. It was shown in the qualitative analysis that instructor 04 showed great concern for encouragement in his teaching behaviour and also received the highest rating on encouragement. Although the observation data indicated that instructor 04 was even stronger on the challenging and directive dimensions than on encouragement, it should be noted that the students rated their instructor overall, that is, not just for the one particular session. It should be stressed once again that the students' perception of their instructor's behaviour was considered the major variable and not the view of an outsider. It is interesting that only in one occasion a teaching behaviour could be identified as a predictor of critical thinking. This might be due to error of measurement

inherent in the TBAS, since some factor items loaded only moderately on the factor but were later treated as if they were measuring a certain dimension of teaching behaviour. Students completing the instrument may not have distinguished that easily between these dimensions. The six TBAS scales showed high correlations among each other for instructor 01 and instructor 02. They seemed to be more independent for instructors 03 and 04; however, for instructor 04, open communication and challenge still yielded a correlation coefficient of .59, and support and encouragement showed a correlation coefficient of .58. A "halo effect" may be another reason why no teaching behaviour could be identified to predict critical thinking for instructors 01, 02, and 03. It may be that students who perceive their instructor as being supportive for example, unconsciously infer from this that he or she is also encouraging, or participatory.

It is apparent that instructor's encouragement seemed to be a predictor for CT3 for the students from instructor 04 but not for the students from the other three instructors. This provides again some support for the contingency aspect of teaching.

The assumption that student self-direction could be predicted from teaching behaviour found some support for instructors 02, 03, and 04. TBAS4 (challenge) could be identified as partially predicting SDLRS for the students of instructor 02 and more strongly for the students of instructor 04. TBAS2 (support) predicted SDLRS scores for the students of instructor 03. We do not

know what other variables (possibly other teaching dimensions) accounted for the rest of the variance of the SDLRS scores. However, since the standard error of beta is higher than beta itself in all three occasions, these are rather unreliable predictions and need to be treated with caution. The large standard error of beta may be due to a social desirability response bias in the SDLRS (since the students were informed about the purpose of the study they knew that self-direction in learning was one of the desired variables and may have assigned a high score to those items on the questionnaire they assumed to be related to this variable). The large standard error of beta may also be caused by the TBAS itself due to the points outlined in the previous paragraph. A closer look at the qualitative data analysis provides further support for these relationships. At this point the data from the interviews with students are of interest and will be referred to in more detail. The analysis of the critical incident data could show that the two students per instructor who participated in the interview and who also had scored relatively highly on the SDLRS, also experienced some form of critical thinking and self-direction in the course taught by the instructor. The data from the interview with students were later analysed in terms of the eight factors underlying Guglielmino's SDLRS, in terms of the teacher's behaviour, and changes in their own thinking about the issue. To avoid a social desirability response bias, the students were not specifically questioned in terms of their self-direction in learning, but the data from the critical incident exercise were later used to infer their self-directed learning

readiness. The problem with this approach was that not all students provided data that could be related to the eight factors of the scale. As a consequence, for some students no data could be identified as pertaining to the eight SDLRS factors which could have helped to triangulate the obtained SDLRS scores. On the other hand, it should be noted that for some students the qualitative data provided great insight and support for the SDLRS scores they received. In the interview the students were asked to identify a learning experience they had which seemed significant to them. It became evident that the students pointed to an experience in which they learned something that was of real interest to them; in other words, the incident they identified was a situation in which they were highly motivated to learn. As was pointed out above, there is some emphasis in the literature (Meyers, 1986) on "motivation" as a prerequisite for the development of critical thinking skills. Although the first incident which was identified by the students did not occur in the course taught by the instructor, most of the students were able to identify a second incident which pertained to the course taught by the instructor who participated in the study. It should be noted in this context that the concepts of self-directed learning and critical thinking overlap to a great extent. The more recent works on self-directed learning (cf. Brookfield, 1986, 1993; Candy, 1991; Chené, 1983; Mezirow, 1985a) especially emphasize the notion of critical thinking as a crucial factor in the self-directed learning process. When the students described the role the instructor played in this situation they described what the instructor did which

they perceived or experienced as motivating and which therefore enhanced their learning. One student from instructor 02 obtained a SDLRS score which lies considerably above the mean. This student, who also was able to identify a significant learning experience within the course taught by his or instructor, described the role the instructor played in this experience as "asking provocative questions". This asking of provocative questions clearly addresses the challenge domain and confirms the results of the regression analysis. The same student added that the instructor was "helpful with discussions" (encouragement), "open for different interpretations of the myths" (participation), and "interested in the material" (encouragement). However, it is interesting to see that this student had a fairly high SDLRS score and perceived the instructor as challenging. Interesting also is that this student had introverted thinking as his auxiliary function and hence shared some characteristics with the instructor whose dominant function was introverted thinking. Since the student's strongest function was extraverted intuition it might well be that his high SDLRS score is a function of his psychological type and not that much a function of compatibility between instructor's and student type. This question will again be referred to when the regression analyses among the eight type scales, the three CT scales and the SDLRS are discussed. The second student who agreed to participate in the interview also received a very high SDLRS score. The data obtained through the interview and the critical incident exercise could clearly be related to the eight factors of the SDLRS and provided further

support for the received SDLRS score. However, this student did not identify any one significant learning experience in the course taught by instructor 02. The only comment made regarding the teaching behaviour of the instructor was "The lectures are boring, the seminars are okay. One learns something there." However, this quote does not allow any inferences as to what it is exactly that makes her learn something there. It should be noted however, that this student had a dominant extraverted intuition function and a fairly small introverted thinking function which means that there was only minimal compatibility of psychological type between instructor and student. Two students from instructor 03 were also interviewed. The first student had received an SDLRS score considerably above the mean. The data obtained through the interview and the critical incident exercise again provided sufficient backing for the high SDLRS score. However, although the student conveyed that he enjoyed the course and valued the instructor's teaching behaviour, he also made frequent reference to former experiences in high school which he described as the more significant ones. The student did not indicate that the course with instructor 03 made him learn anything new. These data need to be treated with caution since it is very likely that the student also was trying to provide answers that he thought were the ones favoured by the researcher. This student enjoyed the instructor's "acting like a judge who keeps order of the seminars". Keeping in mind that this instructor's seminars are completely run by the students who give presentations and engage in debates on the issues presented, it becomes

obvious that the role the student is describing is one of facilitator. The results from the regression analysis could show that for instructor 03, support accounted for 20% of the variance of SDLRS scores. The items on this factor are at least compatible with the student's statement regarding the instructor's teaching behaviour. Again it is interesting to note that the student's dominant function was extraverted intuition. In the analysis of instructor 03 in Chapter Four it was pointed out that he was primarily making use of his extraverted intuition function in his teaching. The compatibility of psychological type of student and instructor may have been a variable that had an impact on the student's SDLRS score. Whether the student's high SDLRS score was related to the instructor's demonstration of "support" or whether the obtained score is a function of previous experiences cannot be said with certainty. It should be emphasized also that extraverted intuition was identified as an overall predictor of self-directed learning in this and in Herbeson's (1990) study.

The second student received a score of 244 on the SDLRS, which also lies considerably above the mean. The data obtained through the interview and the critical incident exercise supported strongly the high score on the SDLRS, since seven out of the eight factors could be identified and confirmed. This student described the role of the instructor as "He offered his support but also challenged us ...he was also open for communication." While this student identified three factors, support, challenge, and communication, as being indicative for this instructor's teaching behaviour, it is interesting that "support"

was the one mentioned first. This provides some backing for the results arrived at through the regression analysis. It seems that the student's score on the SDLRS may be partially explained by the instructor's demonstration of support. This student had a preference for extraverted thinking but also shared a strong extraverted intuition function with the instructor. There was obviously some compatibility in terms of psychological type between instructor and student which may have had an impact on the student's score on the SDLRS. However, it is also possible that the student's SDLRS score is related to her strong extraverted intuition function and less to a compatibility between student and instructor psychological type.

Two students of instructor 04 also agreed to participate in the interview. The first student received an SDLRS score of 245 which lies considerably above the mean. The data obtained through the critical incident exercise did not yield any additional support for this high SDLRS score since only one out of the eight factors underlying the SDLRS could be identified. This student also could not specify any significant incident in his learning that had occurred in the course he had taken with instructor 04. The only learning incident identified was a 10-hour group project he was engaged in in the course. The instructor's behaviour, however, was not specified. The regression analysis indicated that for instructor 04, challenge (TBAS4) was a strong predictor of SDLRS scores. However, one could speculate that the student valued the project because he found it challenging and he perceived the instructor as "setting challenging

course objectives". This then would provide some support for the results obtained through the regression analysis. It is possible that the student's high SDLRS score is related to the instructor's demonstration of challenge in his teaching behaviour. This is further supported by the fact that this student had extraverted sensing as his auxiliary function. Since instructor 04 had a preference for extraverted sensing it can be argued that there was some compatibility between instructor and student in terms of psychological type. However, the student also had a high score on extraverted intuition. Since extraverted intuition was also very strong, it is also possible that the student's high score on the SDLRS is related to this variable. The second student received an SDLRS score of 233 which lies considerably above the mean of 203. The data from the interview and the critical incident exercise provided only moderate support since only four out of eight factors were addressed by the data. The student was not able to specify a significant learning experience he had in the course. However, the student could specify a teaching behaviour of his instructor which he valued: "He lets us find answers to questions" and he added " ...but he gives many questions himself". This quote illustrates that this student perceives the instructor (04) as moderately challenging. This again fits with the results from the regression analysis. The student had a preference for extraverted intuition and introverted thinking (equal score on both scales) but also scored only somewhat lower on the extraverted sensing scale, meaning that there was some degree of compatibility in terms of psychological type of

instructor and student which may have enhanced the instructor's potential to exert influence on this student. The student's quite strong extraverted intuition function may also have been related to his high SDLRS score.

Results Pertaining to Students

The assumption that SDLRS could be predicted from psychological type was supported on three occasions (instructors 02 to 04). The regression analysis showed that extraverted intuition is a strong predictor of SDLRS scores.

The assumption that critical thinking could be predicted from psychological type found only moderate support. No psychological function could be identified to be a predictor of CT1 (recognition of arguments). No relationships seemed to exist between critical thinking and psychological type for the students of instructors 03 and 04. For instructor 02, extraverted sensing was shown to be negatively correlated with CT2 (interpretation) and to be a predictor for CT2 scores. For instructor 01, extraverted thinking was found to be negatively correlated with CT3 (evaluation of arguments) and to be predicting CT3 scores. However, we do not know what other variables also predict critical thinking.

Implications for Theory

The results of this study confirm the theory forwarded by scholars such

as Argyris and Schön (1974), Schön (1983, 1987), Brookfield (1990), and Scott, Chovanec, and Young (1993), which suggests that our teaching practice is a function of the values and beliefs we hold. Theories such as Schön's concept of the "reflective practitioner", or Mezirow's (1991a) theory of "transformative learning" could be expanded by considering and incorporating the situational variables, locus of control and psychological type into the model. The present study provides some support for the results obtained by Richards et al. (1989) and Kortagen (cited in Richards et al., 1989) who argued that people with an internal locus of control orientation were more reflective and examined their practice by making use of their own knowledge, values, and beliefs. Richards et al., also made the point that other personality characteristics, such as psychological type, may influence teachers' tendency or disinclination to engage in reflective thinking. Although much has been written about the notion of "consciousness raising" (Hart, 1990; Mezirow, 1991b) little consideration has been given to the problem as to how reflection on taken-for-granted assumptions can be stimulated and facilitated. The few works which engaged in the endeavour to describe the processes (Mezirow, 1991a) ignored the diversity of situational variables such as personality characteristics. An unquestioned underlying assumption of Mezirow's own work, for example, is that everybody is stimulated and goes through this process the same way. Cranton (1993) challenged Mezirow's work on the basis of this argument and incorporated different learner characteristics into a more comprehensive model

for transformative learning. The present study provides some support for this model.

The study also supports the notion advocated by scholars such as Jahnke (1982) and Nickel (1978), that students' perceptions of their instructor's teaching behaviour has consequences on their own actions and behaviour. Teachers can affect the motivation of their students which, as was argued earlier, is a prerequisite for critical thinking and self-direction. This notion is also in tune with Novak and Stanley's (1992) argument that inherent motivation of students can be invited forth by certain teaching behaviour. The study also could show that there is a direct link between psychological type and self-directed learning. It seems to suggest that intuitives are more prone to engage in self-directed learning activities than people with other preferences. Although theorists such as Grow (1991) proposed that self-directed learning is best promoted when the instruction the students receive matches their current "stage" in the process of becoming self-directed, it is still assumed that all learners go through this process exactly the same way. The literature to date has neglected the point that some people, by nature, are more inclined to engage in self-directed learning than others and that different approaches to facilitate self-directed learning are required to meet the needs of different individuals. The implications of this findings are to develop a theory of self-directed learning that acknowledges individual differences among students and incorporates these into a more comprehensive model of self-directed learning.

Implications for Research

The study shows that faculty's teaching practice is to a large extent a function of the values and beliefs they hold. It would be of great interest to investigate whether faculty's teaching philosophy does change as a consequence of long term involvement in instructional development projects, such as individual consultation with the instructional developer or through peer consultation. How personal theories of practice are developed in the first place could also be explored. New faculty could be encouraged to participate in instructional development activities aiming at making explicit the values and beliefs underlying their practice. It then could be investigated whether these beliefs may change through a process of critical reflection. It also could be investigated whether faculty's locus of control orientation makes a difference in capacity to engage in critical self-reflection. Of particular interest would be to examine whether the beliefs faculty hold about their teaching are a function of the discipline they are affiliated with or the subject area they teach.

It was assumed that teachers try to exert influence on their students with the intent to effect change. For this reason this study attempted to identify relationships between faculty's demonstrated teaching behaviour, as perceived by their students, and student critical thinking and self-direction. The students had 12 to 20 hours of exposure to their instructor. However, this is not a particularly long time and it is possible that stronger relationships could have been identified if the students and instructor had worked with each other longer.

Future research may focus on exploring the influence of faculty's teaching behaviour on their group of students by selecting a student sample that has had intensive previous contact with the instructor. Another possibility is to do a longitudinal study with a student sample which has not yet had any experience with the instructor, and to investigate their reactions to the professor's demonstrated teaching behaviour over time. Designed as an action research project this could involve an enormous opportunity to learn more about the teaching-learning interaction for both the instructional developer whose interest lies more in the understanding of the processes of teaching and learning and the faculty member whose interest is more situation-specific and who is primarily concerned with the question "how shall I best teach this group of students?".

Research on self-direction in learning has been primarily quantitative and descriptive in nature (Brookfield, 1986). The Self-Directed Learning Readiness Scale has been widely used to assess people's self-directed learning readiness. However, the SDLRS score does not tell us anything about the processes learners go through when they become self-directed. In particular it does not provide any information on the student's own perceptions or interpretations of the experiences he or she went through (Candy, 1991). We do not know what stimulated the experience, neither do we know what sustained it. The present study addressed this point by collecting also qualitative data on self-direction in learning. However, interviews with students were held on a one-time basis

which allowed for only a snapshot of this learner's self-direction. Real processes could not be identified. It would be more meaningful to conduct longitudinal studies which focus on identifying the processes learners go through over an extensive period of time. It is in fact an inherent paradox of the present study that it studied processes although, at the same time, its approach is pervaded by selectivity and "snapshots".

Implications for Practice

This study has direct implications for instructional development in higher education. In the past instructional development has followed the "consumer model" (Cranton, 1993); that is, the purpose was seen in to be one of serving faculty with teaching tips which, when adequately applied, will automatically make them better teachers. The present study shows that faculty's teaching is strongly determined by their personal teaching philosophy; that is, by the values and beliefs they hold about education, the role of the teacher, the role of the student, and evaluation. Instructional development should therefore focus on providing opportunities for faculty to become aware of the real values and beliefs that guide them in their practice, to reflect on these beliefs, and finally to arrive at a responsible teaching practice which is sustained by a sound rationale (Brookfield, 1986, 1990; Cranton, 1992; Novak, 1990). One promising way to achieve this is implied in the concept of "action research" (Kemmis & Carr, 1986; Zuber-Skerritt, 1992), primarily aligned with the interpretative and critical

paradigm, which focuses on understanding and emancipation, and suggests "critical reflection" as the crucial method in the creation of knowledge (Habermas, 1971). However, this need not mean that no empirical-analytical methodology may be applied. Contrarily, the present study used a mixed methodology to emphasize the very point that the three prevailing paradigms can be integrated, and that moving beyond commonly accepted boundaries will yield more and deeper insight into the problem one has selected for research. To involve faculty in action research, that is, research into real problems they encounter in their practice, to assist them to engage in critical reflection on their practice, and to encourage them to take action on the basis of the new insights they arrived at through this reflection, are the major implications the present study has for practice. Assisting faculty in becoming cognizant of their psychological type and in becoming aware of how their individual preferences may determine the real beliefs and values they hold and may direct their teaching practice is a further implication which is closely related to the first one.

Another implication for practice is to raise awareness among faculty for the contingency aspect of teaching; that is, raising awareness as to how their personal characteristics are reflected in the way they approach their teaching, in the way they are perceived by their students, and in the way students respond to their behaviour. Awareness raising should also entail an understanding why "variety" is a crucial factor in instruction. The fact that not everybody has a natural preference or inclination to engage in certain activities or attain certain

objectives, here self-directed learning and critical thinking, needs to be accommodated by a variety of instructional approaches and techniques. Workshops which particularly emphasize the influence personality characteristics have on the way one approaches tasks and other people could be offered by instructional development centres. In particular, workshops could be offered on curriculum design including sections on teaching philosophy, teacher characteristics, and learner characteristics which are to be taken into account when planning a course.

Summary

Chapter One introduced the problem and the purpose of the study and provided a rationale for the conduct of this research.

Chapter Two discussed the relevant literature, including works on the philosophical and conceptual framework this research is embedded in and on the five variables included in this study: philosophy of teaching, critical thinking, self-directed learning, psychological type, and locus of control. Research already existing on the topic was discussed.

Chapter Three introduced the methodology and provided a rationale for following a combined research design in this study. The difficulties implied in integrating research paradigms were discussed. The development of two instruments was described: a scale to assess teaching behaviour (TBAS); and a scale to assess locus of control of teachers (LOCSFT).

Chapter Four introduced the results of the study. The results of the

qualitative part were discussed in more depth.

This chapter has discussed the findings of this study in terms of theory, research, and possible implications for practice.

Among the assumptions listed in Chapter One, there is one this researcher considers pivotal; that is the assumption that critical thinking and self-direction are goals of university education. This study was conducted in the attempt to test the validity of this assumption. Arguing that genuine educational goals are made explicit through intentional pedagogical action, the present study tried to find an answer to the question whether university faculty deliberately employ teaching strategies or behaviours which are suited for fostering critical thinking and self-direction in students. The fact that from more than eighty faculty, only four agreed to participate in a study aimed at investigating this point, raises some doubts in terms of faculty's commitment to the underlying values of these goals. Although it is indeed valuable and refreshing that university administration is devoted to these educational aims, as was explicated in the most recent Report of the President (1993), as well as in Brock's mission statement where "a passion for life-long learning and the abilities to think creatively and critically" (p. 13) are among the highlighted objectives, we may need to ask more often whether the educational goals we tend to take for granted are really commonly accepted and practised. The present research, despite of its limitations, may be considered a first step in this direction.

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Limited.

Appendices

T.B.A.S.

I.D. no. _____

This questionnaire is designed to measure instructors' teaching behaviour as perceived by their students. Using the scale below, please indicate the degree to which each statement describes the behaviour of your instructor.

1	2	3	4	5
NO!	no	yes & no	yes	YES!

- ___ 1. The instructor lets students know what is expected for each session.
- ___ 2. The instructor involves students in the planning, conducting, and evaluating of learning activities.
- ___ 3. The course challenges me intellectually.
- ___ 4. Students choose their own topics or assignments.
- ___ 5. The instructor encourages discussions among students.
- ___ 6. Individual students' experiences are taken into account in the course objectives.
- ___ 7. The instructor is readily available for consultation with students.
- ___ 8. The instructor values the opinion of the students.
- ___ 9. The instructor is responsive to the needs of individual students.
- ___ 10. The instructor relates to people in ways which promote mutual respect.
- ___ 11. The instructor encourages students to ask questions.
- ___ 12. The instructor encourages me to excel in what I am doing.
- ___ 13. Students are given choices of learning activities.
- ___ 14. The instructor sets challenging course objectives.
- ___ 15. The instructor emphasizes excellence in performance.
- ___ 16. The instructor shows confidence that students can attain high challenging goals.

- ___17. *The instructor asks thought-provoking questions.*
- ___18. *The instructor frequently asks if clarification or assistance is needed.*
- ___19. *The instructor has a course outline listing topics, readings and objectives.*
- ___20. *The instructor gives clear guidelines for evaluation.*
- ___21. *The instructor sets clear criteria for student assignments.*
- ___22. *The instructor provides constructive feedback.*
- ___23. *The instructor has set up a supportive climate for communication.*
- ___24. *The instructor is a good listener.*
- ___25. *The instructor always encourages me to do as well as I can.*
- ___26. *The instructor actively helps when students have difficulty.*
- ___27. *The instructor inspires interest or excitement in the content of the course.*
- ___28. *The instructor provides meaningful written comments or feedback.*
- ___29. *The instructor is willing to explore a variety of points of view.*
- ___30. *The instructor expects students to follow certain rules and regulations in the classroom.*
- ___31. *The instructor gives clear guidelines as to what to prepare for the next session.*
- ___32. *The instructor selects the course topics.*
- ___33. *The atmosphere in this class is relaxed and tension-free.*
- ___34. *The instructor has set up definite deadlines for assignments.*
- ___35. *The instructor encourages student participation in decisions affecting them.*
- ___36. *The instructor communicates ideas with conviction.*
- ___37. *The instructor actively recognizes the contributions of students.*
- ___38. *The instructor states his or her expectations as to how students' work should be conducted.*

Name: _____

LOCSFT

Using the scale below, please indicate the degree to which you think each statement describes your personal beliefs.

Strongly disagree	disagree	agree	strongly agree
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1

2

3

4

- ____ 1. I feel that I have little influence over how much students learn.
- ____ 2. Some students seem born to fail whereas others seem to be born for success, no matter how the material is presented to them.
- ____ 3. It is difficult for teachers to have much impact on how much and how well students will learn in a course.
- ____ 4. Whether a student is interested in the subject matter is beyond the range of my influence and control.
- ____ 5. As teachers we have to face the reality: "The interested student will learn and be successful in the exams and the uninterested won't – there is not much you can do about it".
- ____ 6. There is not much use to predict how a session will go.
- ____ 7. When I feel that I had a really good session I consider it due to a run of good luck.
- ____ 8. I have usually found that regardless of what I do there are always some people who do poorly in the exams.
- ____ 9. There is always a way to connect with a student.
- ____ 10. Success in dealing with people seems to be more a matter of the other person's moods and feelings at the time rather than one's own actions.

please see second page

- ___ 11. *I think that effective teaching is mostly a gamble.*
- ___ 12. *If many students participate in class I know that it is due to the way I teach.*
- ___ 13. *Unfortunately there are always students with whom you simply cannot connect.*
- ___ 14. *Many times I think that I have little influence over the learning of my students.*
- ___ 15. *There is a direct connection between how well I am prepared and how well a session runs.*
- ___ 16. *I have realized that students respond to my modelling of certain behaviours or attitudes.*
- ___ 17. *The great range of learning styles, intelligence and psychological characteristics of students makes it impossible to teach in a way that suits them all.*
- ___ 18. *The way I approach students makes a difference in how they respond to me.*
- ___ 19. *I can make every students learn. It's merely a matter of finding the right approach to connect with them.*
- ___ 20. *If there are some students who seem to have not learned I know that I did something wrong.*
- ___ 21. *If students do well in their assignments I know that it is to a large extent due to my teaching.*
- ___ 22. *As much as I expect my students to be responsible for their own learning, the more I feel mutually responsible if this learning does not seem to occur.*
- ___ 23. *There is always a way to teach a particular student.*

THANK YOU FOR FILLING OUT THIS FORM!

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